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Owned and Published by

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Publication Office
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Philadelphia, Pa.

Editorial and Executive Offices
239 West 39th St.
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Member, Audit Bureau of Circulations
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Indexed in the Industrial Arts Index.
Published every Thursday. Subscription Price: United States and Possessions, Mexico, Cuba, $6.00; Canada, $8.50; Foreign, $12.00 a year. Single copy, 25 cents. Cable Address, "Ironage, N. Y."

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THE IRON AGE

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▲▲▲ THE IRON AGE ▲▲▲

SEPTEMBER 1, 1938

ESTABLISHED 1855 Vol. 142, No. 9

Not a Fellow Worker

SOONER or later the American steel workers must learn some of the bitter truths about their eloquent friends, the politicians.

Even William Green and John L. Lewis, intent on kicking and gouging each other around the labor ring under the rules of the "peace-promoting" Wagner Labor Relations Act, have their moments of disillusionment.

Only recently the President named the five men he considered most responsible for establishment of the Social Security Act and Mr. Lewis and Mr. Green were not on the list.

All of the five men are politicians, able fellows who have done something or are expected to do something for the benefit of their masters at Washington.

Yet none of these five are labor leaders in the accepted sense of the term, and public acknowledgment that the five headed the list of those going to bat for this legislation must have left Mr. Green and Mr. Lewis considerably annoyed. They, too, have labored in the vineyard.

If the New Deal considers labor union leaders necessary evils to be scraped off into the nearest ditch when opportunity arises, now is the time for Mr. Green and Mr. Lewis to be thinking about it.

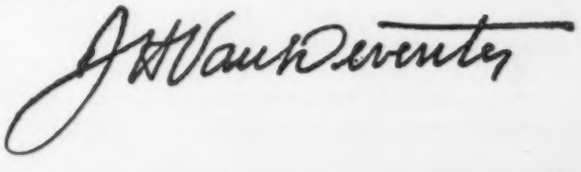
In common with all American steel workers, with workers in all industries, these two labor chieftains might also be thinking about Government costs, of the politician's "take." They should likewise be warning their followers, just as employers should be telling their employees, that taxes are steadily draining dry the pools from which wages come.

For the first half of 1938, this drainage amounted to 46 million dollars for the steel industry alone. Federal, state and local taxes paid by steel manufacturers in the first half of this year were equivalent to a full month's pay for 327,000 employees. For the full year the steel industry will have paid to the Government the equivalent of two months' wages for a third of a million men.

Every employer in the country would do well to translate his tax bill into wages and tell his employees just how many dollars might have been paid them in wages this year if it had not been for the tax collector's visit.

Every labor leader, starting with Messrs. Green and Lewis, should do some figuring for his union members as to the blighting effect of industry's 1938 tax bill on the pay envelope before it reaches the worker's hand.

Surely the Tax Collector is not a Fellow Worker.



The Conception, Development, For an Entirely New Surface

By WILLIAM F. SHERMAN
Detroit Editor, The Iron Age

o o o

WHEN special finishing operations were first used they opened a broad new field of achievement in precision manufacture. Recent developments in the automotive field have given this industry the means for developing finishes almost to the point of perfection, with control possible within a fraction of a millionth of an inch.

This means of producing "optical flats" on metal, or the equivalent of a gage block finish on production parts in a few seconds, has been made available through three years of research by a special group of men in the Chrysler Corp. They have developed new mechanical equipment using relatively coarse stick-type stones which in a few seconds remove all measurable surface defects from metal parts. Combining in its technique many of the methods common to simple honing or lapping, the new process departs from these in many fundamentals and has implications of broad and deep changes to come in precision manufacture.

Coincidental with this development, an independent research organization working with Chrysler produced for the first time a commercial device which could measure variations in the smoothest metal surface at speeds a thousand times greater than was possible with previous instruments.

"Superfinish" was so named by D. A. Wallace, president of the Chrysler Sales Corp., a division of Chrysler Corp. Having supervised its development over a period of three years, he defined it as:

"An extremely fine surface finish produced upon flat, internal, external, round, concave, convex, and other types of surface by a combination of short motions, light abrasive pressures, slow abrasive cutting speeds, hard abrasive stones and a lubricant of proper viscosity that eliminates the scratches and surface defects created by previous mechanical operations, without creating scratches or defects."

Implied similarity to honing or lapping is incidental and unavoidable. Actually, the new process is only reminiscent of the other two. The difference between Superfinish and other methods of machining surfaces is shown in Fig. 1 which indicates why the process merits its new name and calls for an entirely new engineering outlook on the subject of fine surfaces.

The process produces a finish with characteristics quite different from simple honing or lapping. It has affected the processing schedule for many parts, frequently reducing manufacturing costs. Because it improves lubrication and tends to eliminate wear, it is possible that it will change features of design of many precision devices such as the automobile engine when it is applied more generally in their manufacture, and when all of the advantages of it have been demonstrated in service. It has virtually raised the demand that surfaces be specified with a finish within a definite range (as dimensions are stated with tolerances) or, as an alternative, that surfaces be rated (as gages are classified by degree of accuracy).

Applied to Many Parts

Tangible results are seen today on roller bearing races, crankshaft main bearings and pin bearings, camshaft bearings and cam contours, bearing journals, cylinder bores, pistons, piston pins, valve tappet heads, valve stems, brake drums and shoes. Further applications to spring shackles, king-pin bearings and steering gear parts are pending in the automotive field. Also being studied is the application of Superfinish to aircraft valve rocker arm bearings, variable pitch propeller mechanism, control parts and landing wheel bearings. The process also can be used for a variety of other mechanical parts, ranging in size from needle bearings to paper mill and steel mill rolls.

It is obvious that one of the important aspects of Superfinish is the fact that it is easily applied to numerous geometric shapes, including flats, tapered holes, concave and convex surfaces, round shapes (external, as well as bores) and cam profiles. Even for "shoulder" work, Superfinish can be applied to insure the re-

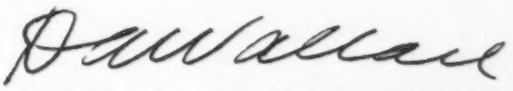
Equipment and Measuring Methods

Finishing Method—Superfinish

THE Chrysler Corp., production research engineering department, has collaborated with the editors of The Iron Age in here presenting a comprehensive story of a new technique of surface finish, called Superfinish.

Superfinish not only involves an entirely new shop technique and the design of many machines, but might be said to entail a new shop and engineering philosophy of metal finishing.

After three years of extensive research, the details of these studies are here discussed at length and illustrated by original test data.



President, Chrysler Sales Division, Chrysler Corp.

moval of scratches which might become incipient fatigue cracks.

How Study Started

The attention of a group of Chrysler manufacturing experts was directed at this subject three years ago when Mr. Wallace discovered that harmful brinell marks were made by the rollers on roller bearing races on rear axles of cars shipped transcontinentally by rail. At first complicated explanations were offered for these indentations which produced noise and eventual bearing breakdown. Among the explanations were that of corrosion, the effects of electrolysis, etc. However, Mr. Wallace demonstrated that lapping would remove the infinitely thin layer of grinding "fuzz" which, he had discovered, was what really had been indented or brinelled from the pounding effect produced by the railroad cars on the rails. The base metal was unaffected.

The investigation that was launched then eventually brought about a complete change in the manufacturers' methods of finishing the bearing races. In the course of solving the problem, the automotive men collaborated with Timken Roller Bearing Co. and had H. R. Krueger & Co., Detroit, build machines incorporating the principles of Superfinish. The original machine, Fig. 2, had four heads which operated 500-grit disk stones inside the bearing races with a rotating, oscillating movement in the presence of a constant flow of cutting fluid. With a speed of 150 r.p.m. and very light pressures on the work, the time required to produce a satisfactory finish was less than 1¼ min. per bearing race.

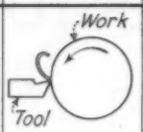
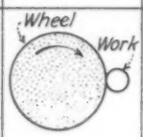
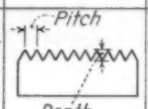
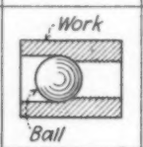
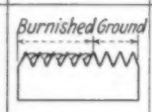
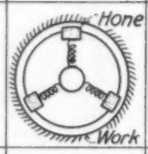
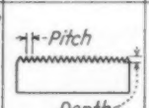
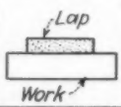
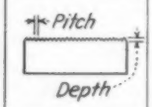
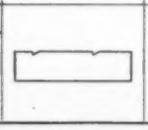
Results were so outstanding that the Chrysler Corp. proceeded to investigate surface finishing of a large number of automotive parts. The success of this more ambitious program for the development of better finishes can be measured at a glance on the chart, Fig. 3.

Before the start of the Superfinish program, production parts were given what an observer would call conventional processing, with usual results. Camshaft and crankshaft bearings, valve stems, cylinder block bores and tappet heads, all were smooth within 20 millionths of an inch, or 20 micro-in. (0.000020 in.). The crankshaft, which was given precedence in the development work, showed the most immediate and marked improvement in surface finish. A 100 per cent improvement on the crankshaft has been registered since the start of the program.

It was demonstrated that in lapping a crankshaft bearing by means of paper or cloth charged with abrasive, there is a natural tendency for the tape to follow and conform to all the surface irregularities presented to it. While this method may produce a bright, glossy bearing surface (caused by light reflected from scratches), impartial laboratory evidence disclosed the true condition. Hence it was decided to make use of a fixed abrasive because it held the only promise of removing surface irregularities and bringing the surface to base metal. Using a lathe and simple test apparatus, a basic method for finishing crankshaft pin bearings was developed. The crankshaft Superfinisher now used in production is shown in Figs. 4 and 4-A.

No hit-or-miss tactics entered the

SUPERFINISH COMPARED WITH OTHER TYPES OF FINISH

Finish name	Finish diagram	Diagram of scratches finish produced	Scratch depth, micro-inches	Scratch depth,, inches	Scratch pitch, inches	Surface speed, ft. per min	Feed, inches per min.	Size change, inches	Pressure, lb.	Heat, deg. F.	Depth of surface ductility, in.	Motions used
Turned			50 to 500	0.00005 to 1/32	0.005 to 1/16	50 to 500	0.005 to 12	0.010 to 1/2	100 to 1000	600 to 1000	0.010 to 1/8	1
Ground			35 to 200	0.000035 to 0.0002	0.0001 to 0.002	3000 to 8000	0.005 to 1.0	0.000015 to 0.000020	100 to 1000	600 to 800	0.0005 to 0.003	2
Burnish			10 to 50	0.000005 to 0.0001	0.0001 to 0.002	10 to 100	0.005 to 10	0.0001 to 0.005	100 to 2000	10 to 150		1
Honed			5 to 50	0.000005 to 0.0005	0.0001 to 0.002	400 to 1000	0.001 to 0.005	0.001 to 0.005	50 to 200	100 to 300	0.0001 to 0.001	3
Lapped			3 to 10	0.00003 to 0.00001	0.0001 to 0.001	20 to 100	0.000001 to 0.00001	0.0001 to 0.001	1 to 50	10 to 100	0.00001 to 0.0001	2
Super-finish			0.5 to 10	0.0000005 to 0.00001	None	3 to 8	0.002 to 0.020	0.00005	0.1 to 10	0 to 1	0 to 0.00001	3 to 12

ABOVE

FIG. 1—This chart compares Superfinish with other types of surface finish produced by metal working tools in terms of depth of scratches and their pitch. Superfinish has no scratch pitch since the scratches are extremely light and irregularly spaced.

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FIG. 2—The first Superfinisher was built to remove the grinding "fuzz" from the inside of roller bearing races to prevent brinelling in the static condition.

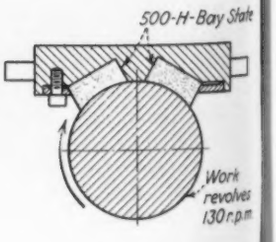

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FIG. 3—Yearly improvement in surface smoothness of typical automobile parts since the start of the program in August, 1935.

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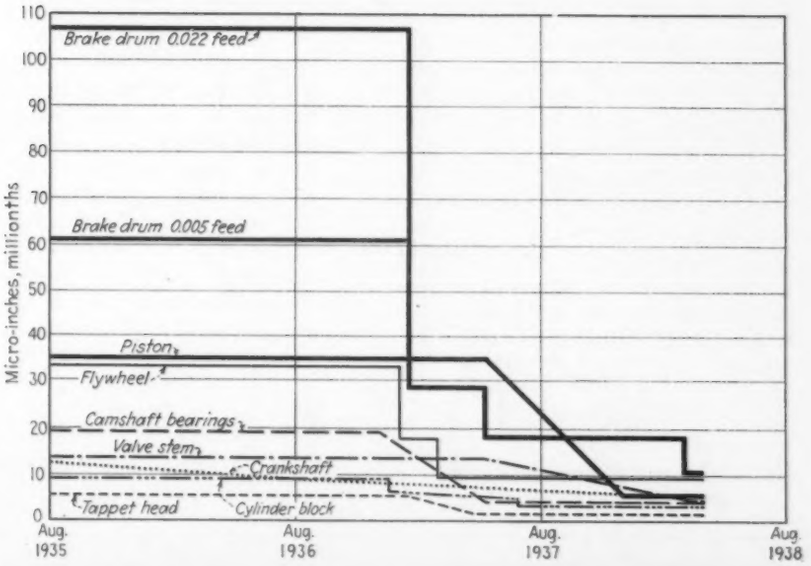

determination of the proper combinations of pre-finish operations, stone selection, speeds or motions for Superfinish. As shown in Fig. 5, a series of 24 crankshaft pins (four groups of six) served as material for one test. Each shaft initially was rough and finish ground with different sets of stones. As shown near the top of the chart, pins not Superfinished showed smoothness of 35, 21, 38 and 38 micro-in., respectively. Then, as indicated in the lower part of the chart, the pins were Superfinished, using different sets of stones on each bearing to determine the most effective ones.

The chart shows that No. 4 bearing, Superfinished by a hard stone, invariably turned out best. The most satisfactory combination is that indicated in Group 2 where the coarse stone is used for Superfinish after rough grinding with Norton 46-Q-4A and finish grinding with Norton 70-N-5 stone. In this case, the preliminary finish of 21 micro-in. is improved to approximately 5 micro-in. for the final finish.

Of course, the development of such precision finishing equipment could

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FIG. 4—In the crankshaft Superfinisher, each stone holder is oscillated sideways through an eccentric driven by individual Hi-cycle electric motors. Drive units and stone holders are supported on a master crankshaft which rotates in synchronism with the work.

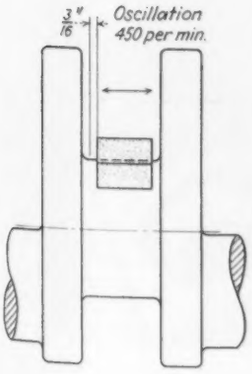

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FIG. 4A — Detail of the stone holders for Superfinishing crankshafts.

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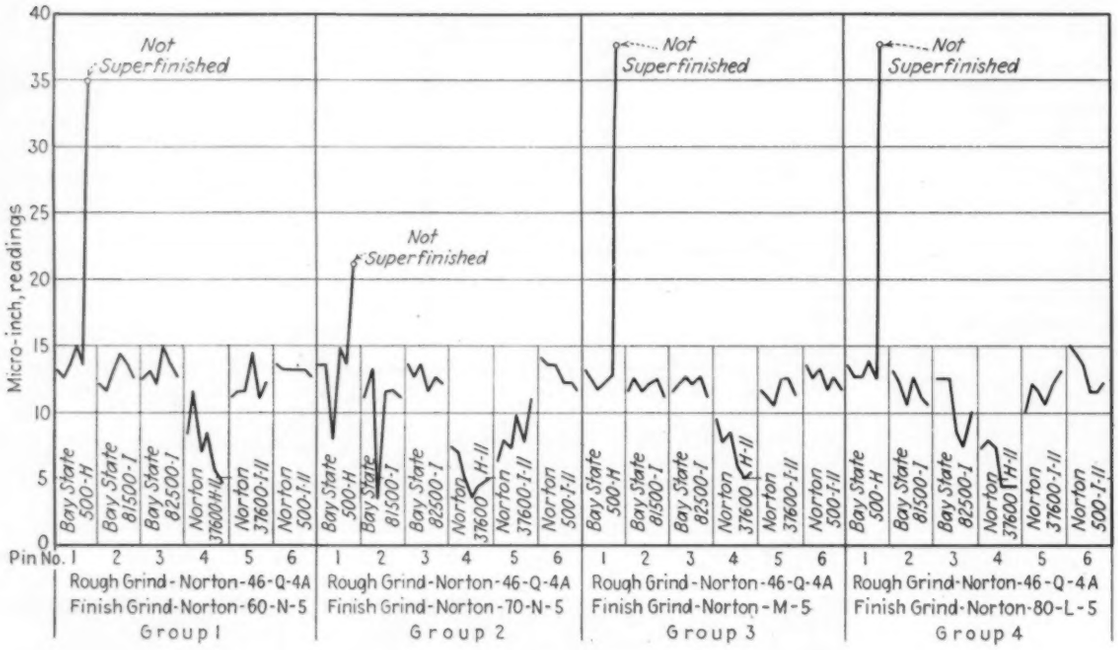


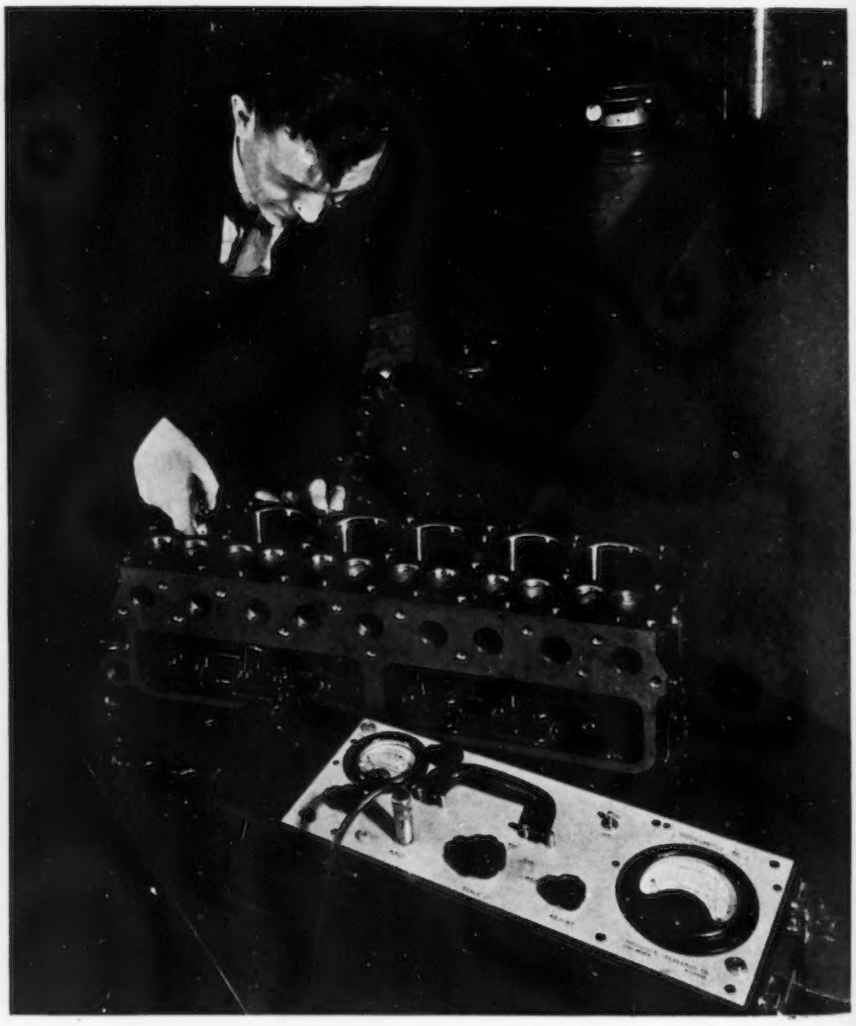
FIG. 5 — From these Profilometer readings on crankshaft pin bearings of 24 different crankshafts, the most suitable stone for rough and finish grinding before Superfinishing was determined. No. 4 bearing in group 2 shows the best performance. Its final finish is less than 5 micro-in.

not have proceeded without a yardstick which would give a means of comparing surface roughness. Once finishes could be compared exactly, improvements in finish could be charted and controlled. At that time Dr. E. J. Abbott of the Physicists Research Co., Ann Arbor, Mich., was probing into the subject with a device he called the Profilograph or Profilometer. Only two laboratory models were in existence, but Mr. Wallace encouraged the development of more usable apparatus for the shop.

Development of the Profilometer

For general use in an automotive plant for the measurement of surface defects, the equipment must needs be accurate, inexpensive, portable, and easily used in production and on large or small parts, whether flat or crowned, concave or convex. Dr. Abbott proceeded with the development of a portable instrument shown in Fig. 6 with elements shown in Fig. 6-A. The tracer point shown in the diagram is diamond tipped with a 60-deg. angle and a 0.0005-in. radius. This is sharp enough to bottom the principal irregularities of the surface being measured. The diamond point is mounted on a duralumin tube supported by light springs. How the movements of the pointer are translated into electrical voltages is explained in the caption.

On the portable, commercial model, the meter will average the values of surface roughness as the tracer is passed over the object. It is a flexible



tool which will permit readings varying from less than 0.000001 in. to 0.001 in., a range of 1:1000. The magnification is far better than is possible with the best microscopic equipment. The Profilometer is essentially a high speed device capable of making traces one thousand times as rapidly as any previous instrument. It permits automatically taking a continuous running average of the height of surface irregularities, and the scale is calibrated to read directly in micro-inches. Estimates can be made as low as a tenth of a millionth. The instrument will also indicate the presence of individual scratches and other unusual irregularities.

Accepted methods of testing surface smoothness vary all the way from mere visual observation to estimations based on measurement by the wave lengths of light and even evaluation of the coefficient of friction. All of them rely in a great degree on personal opinion or estimation. Even in the use of light wave lengths, there is a serious limitation. No optical instrument can form images of an object smaller than the wave length of light used. For ordinary light this is approximately 20 millionths of an inch (0.000020 in.), as has been discussed by Dr. Abbott in *Mechanical Engineering*, March, 1938. Even a very smooth surface has irregularities whose width is from 40 to 400 times the height. In what he calls "coarse" roughness, the width or "pitch" of scratches is from 150 to 800 times the height, but in these instances the height does not exceed 7 to 10 micro-in. Hence, these heights cannot be observed by optical means.

While a microscope with suitable illumination is valuable for obtaining data on the plan view of surfaces, it is of little or no value in determining the height of irregularities on smooth surfaces. In the work undertaken by Chrysler, the heights of surface defects were of considerably more importance than the plan dimensions of the scratches or irregularities.

(To be continued)

As a result of wide-gaged policy on the part of the Chrysler Corp. and its leading executive, K. T. Keller, modern industry has been given access to Superfinish, a new process fostered by Chrysler after intensive research. Applications now in effect or near realization range from plows to aircraft, from automobile engine tappets to 50-ton steel mill rolls. Today it is the most talked of mechanical development in industry, having been viewed by approximately 400 production and engineering executives, including many from abroad. Even as it was being demonstrated to these visitors at Chrysler's Jefferson Avenue plant, new phases of the development were unfolding. The latest of these, and the first complete story of Superfinish, are revealed in this IRON AGE series of articles.

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FIG. 6—Application of the portable Profilometer to checking the smoothness of automobile engine cylinder bores. Average roughness in millionths of an inch can be read directly on the instrument scale at the right.

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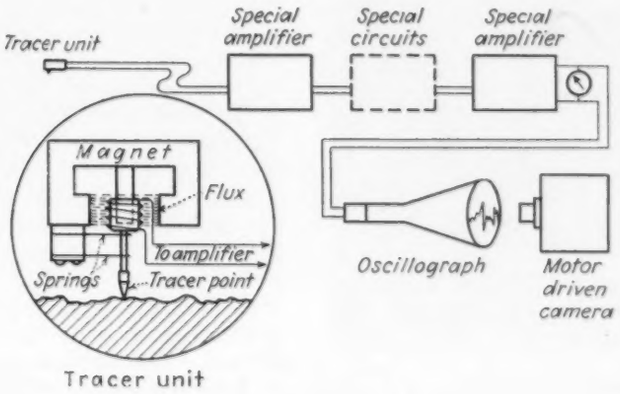
BELOW

FIG. 6A — Diagram of elements of the Profilometer. The tracer point stem carries a coil at its upper end and as it vibrates in the magnetic field, an electrical current is generated, the voltage of which can be amplified by suitable means to any desired value. The instrument is shown hooked up to a cathode ray oscillograph with means for obtaining a photographic record on a moving film. In the commercial models, a galvanometer is substituted for the oscillograph and it has enough dampening to average out the irregularities of the surface. With suitable calibration it will indicate the average depth of scratches directly in micro-inches.



Japanese Take Over Chinese Steel Firm

ACCORDING to a report of the Department of Commerce, the Central China Steel Corp. (capitalized at 20 million yen) is to be organized as a subsidiary of the Central China Promotion Co. The Nakayama Steel Works in Tientsin is also reported to be expanding its machine tool plant. Japanese press reports have stated that all Chinese iron and steel manufacturing works throughout Japanese occupied areas have been transferred by the Army to the ownership of a major Japanese company which is expected to expand those enterprises to meet the entire Japanese demand. The Kungchin Iron Works (a private Chinese concern) located in the Yangtzepoo area, Shanghai, is stated to have been taken over by Japanese interests and is now being operated as the "Asiatic Iron Works No. 3 Factory" and is turning out steel nets. The Hwa Shang Iron Works (formerly a Chinese private concern) is now engaged in the melting of scrap iron collected from various areas after occupation by Japanese. Twenty-six tons of "iron" is melted every day and, according to reports, is being sent to Japan.

Stanley Works Trying to Find Oldest Unishear in Use

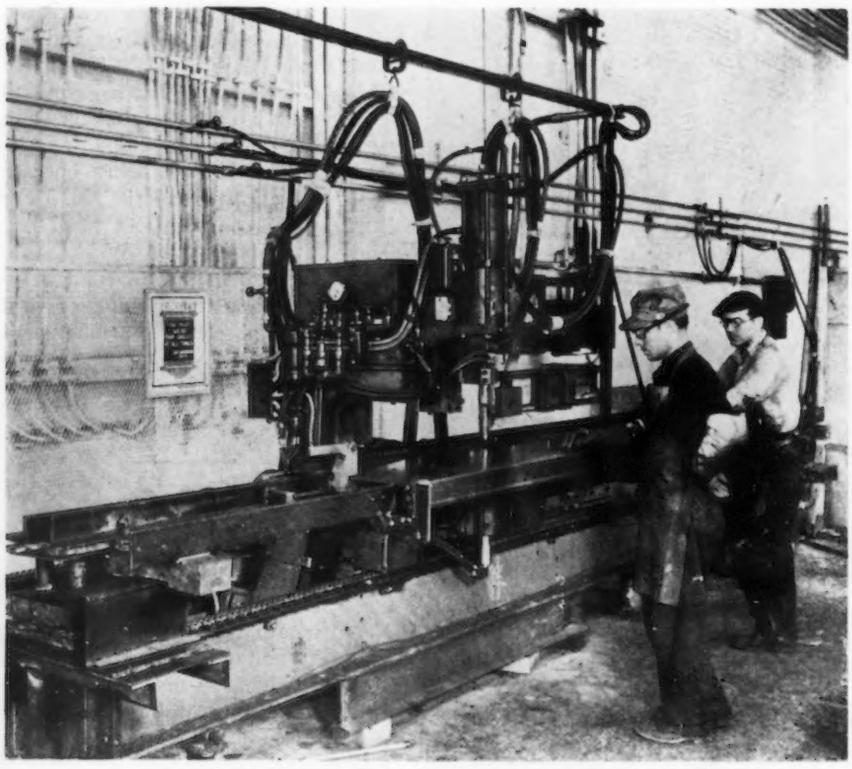
STANLEY ELECTRIC TOOL DIVISION, STANLEY WORKS, New Britain, Conn., has launched a contest to find out who owns the oldest "Mighty Midget" Unishear still in use. The winning company, shop or person will receive a new "Mighty Midget." The contest opens Sept. 15 and will run until Oct. 31, this year.

New Pullman Box Cars Five Tons Lighter

BY ROBERT BINGHAM
Western Editor, The Iron Age

AFTER several achievements in the passenger car field, the Pullman-Standard Car Mfg. Co., has apparently scored again with its new welded light-weight freight cars. Constructed mostly of high-tensile low-alloy steel, this car is nearly five tons lighter than the standard A.A.R. car of equal size and capacity, and thus accommodates five tons additional pay load.

A.A.R. reports on comparative impact tests of the Pullman lightweight box car and the A.A.R. standard box car revealed that "The stresses, in proportion to the yield point of the material, were in general lower in the Pullman car than in the A.A.R., at practically all speeds of impact. . . . The overall results of the tests show that the Pullman car and the A.A.R. car are both sound structures."



Spot welding posts to side sheets.

Construction entails the use of three distinct methods: Spot welding, arc welding and riveting. The resistance spot welding method used is one in which the parts are overlapped and gripped between two electrode points through which a heavy current is passed and pressure applied to make the weld in a single spot. Based upon total length of seams, spot welding comprises 70 per cent of the entire operation, 2601 ft. being fastened together in this manner out of a total of 3721 ft. of seams. The temperature, timing and pressure varies according to the type, thickness and number of layers of material.

The existing equipment in the spot welding department is able to turn out 1½ roofs and 3 sides hourly. Plans permit expansion of the present layout to double this capacity in the future. All spot welding operations are quartered in a new building with floor area about 140 ft. x 220 ft. With the exception of the roof application to the steel body, all spot-welding work is concentrated in this one building.

Spot welding equipment includes two non-indexing automatic double-head 75 kva., two indexing automatic single head 100 kva., four stationary spot welders 50 kva., nine portable tools 100 kva., and 18 portable tools, 75 kva. The non-indexing machines are used for spot welding the side

sheet assembly and the roof sheet assembly. The indexing automatic machines are for the door sheet assembly and the door post assembly. The reinforcements on the roof carlines, the side posts and other small miscellaneous sub-assembly work are welded by the stationary spot welders. The electronic principle of timing is used on most of the machines with air timing on the balance.

The portable tools were especially designed to handle some individual feature of sub and final assembly. These are used to apply the side plate, side sill, post connections, etc., to the sides. Other portables are also used for applying the roof to the car and for the final assembly of the side doors.

Each day a test spot weld specimen is made by each machine and is tested to insure correct timing, temperature, etc. In addition, inspectors sound each button on every bench assembly to guarantee a continuous quality of the weld.

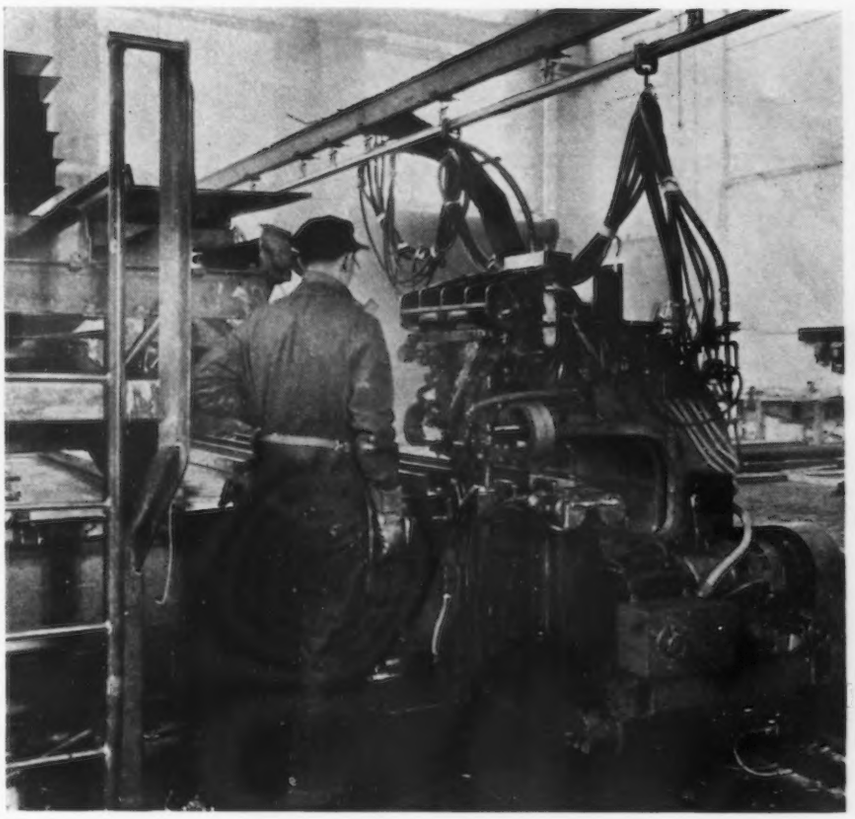
Arc welding, which comprises 1030 ft. of seams, or 27.7 per cent of the total is the shielded arc type in which coated electrodes are used. The type and size of rod depend on position, size of weld and kind of material. The arc welding is inspected during and after welding by experienced welders who have been trained as inspectors. Each arc welding operator has been schooled for his particular production job and has passed an established set of tests.

Every bench assembly with either method of welding is made in a special jig to insure uniform accuracy. The jigs for arc welding are all constructed to permit flat welding, eliminating the majority of horizontal, vertical and overhead welds. Close supervision, continued inspection and daily testing of welds is carried on at all times.

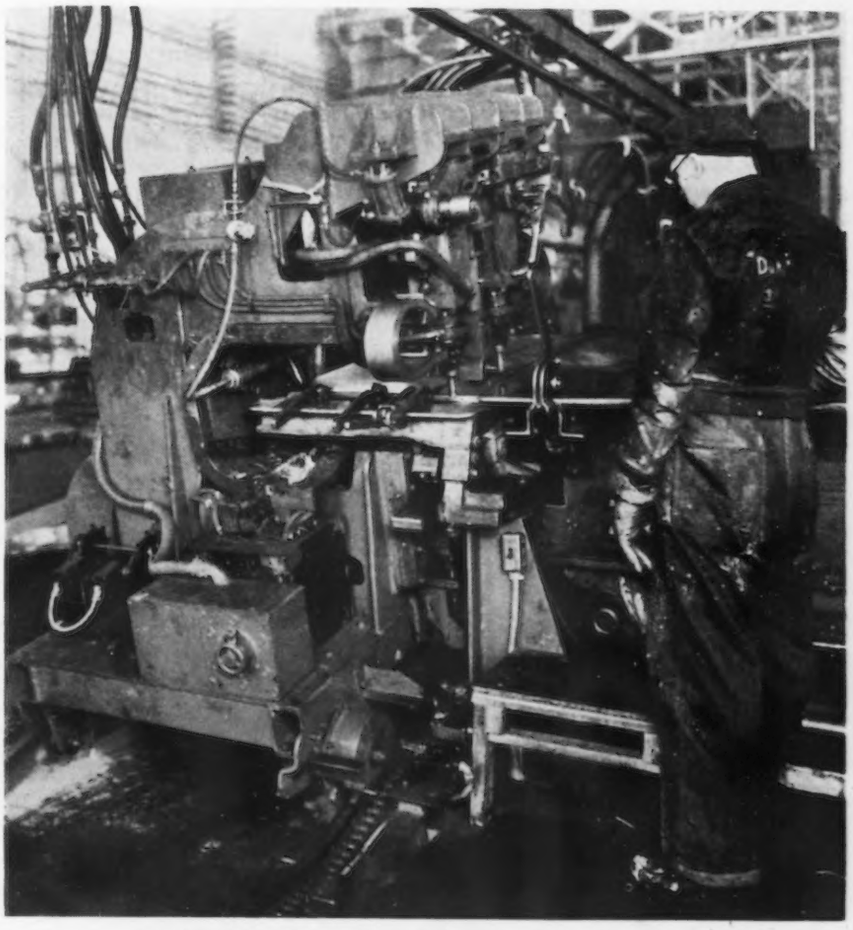
The remainder of the operations, 2.3 per cent, consist of riveting, which is employed along the corner post seam for the final application of the ends to the car and along the side sills for the final application of the sides to the underframe. At present, riveting appears to be more advantageous than either method of welding for these particular joints, according to the company.

A thorough check of welding and riveting is made by inspectors at the final position on the steel erection track.

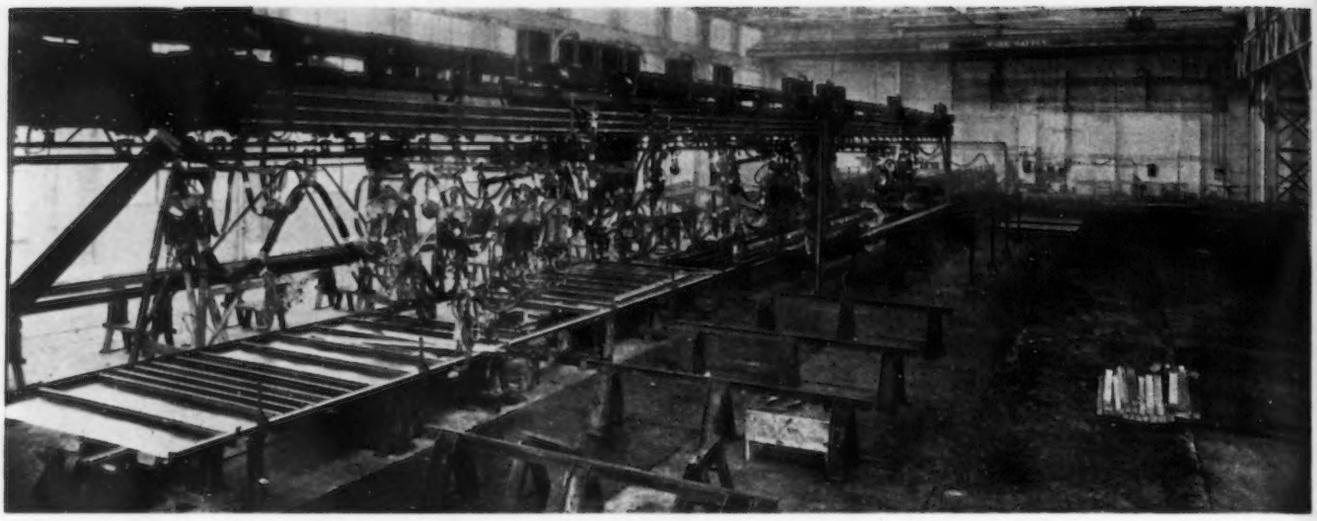
This new car has a nominal capacity of 50 tons and an interior revenue space of 40 ft. 6 in. long, 9 ft. 2 in.



Side spot welding machine in operation.



Roof sections being spot welded by special machine.



Special jigs and portable spot welders used in fabricating complete sides.

wide and 10 ft. ½ in. high. The ratio of maximum revenue load to total weight on the rails is 78.9 per cent as compared with 73.7 per cent for the A.A.R. car.

Side, roof, door and end sheets, end plate, side plate, and side sills are constructed of high-tensile low-alloy steel. The center sills are made of high carbon open hearth steel with a minimum yield point of 36,000 lb. Wheels are chilled tread, 695 lb., light weight design, recommended by the Association of Chilled Car Wheel Manufacturers and approved by the A.A.R.

The side sheets are automatically spot welded together with 176 spots in two rows of spots spaced every ¾ in. vertically, staggered with ⅞ in. between rows. Roof sheets are welded automatically in two rows of spots staggered, spaced 1 in. with 1 in. between rows of spots, a total of 200 spots being made.

Welding current is 14 volts, 5000 to 6000 amp. and pressure ranges from 700 to 4000 lb. depending on the thickness of the material, with the average running about 1200 lb.

A strength test on this particular job revealed that a ¼ in. spot in tension is three times as strong as a ⅜ in. rivet. Following the impact tests, a close inspection of some 14,000 spot welds of the Pullman car showed no indication of weakness or failure.

British Steel Output Lowest in 3½ Years

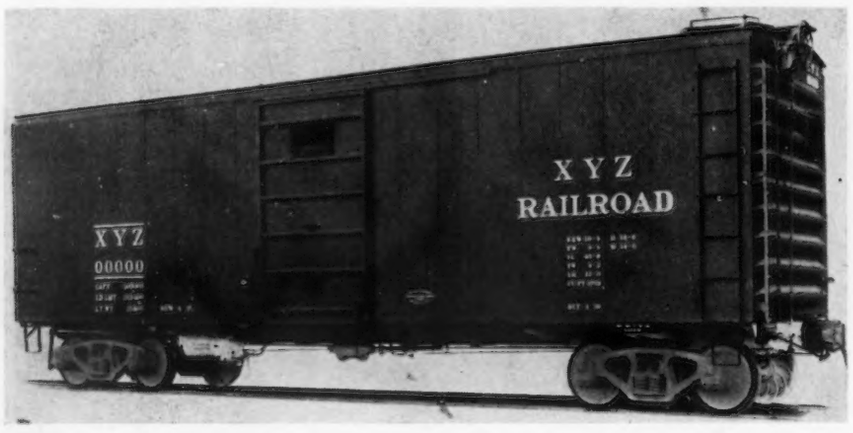
LONDON (*By Mail*).—The British Iron and Steel Federation announces that United Kingdom production of steel ingots and castings amounted to 683,200 tons in July. This is the lowest monthly total for three and one-half years and compares with 776,100 tons in June, 1,059,200 tons in July, 1937, and the record figure of 1,178,300 tons reached in November last.

Pig iron output amounted to 507,800 tons, against 541,500 tons in June and 729,300 tons in July last year. This included 120,500 tons of hematite, 266,100 tons of basic, 98,500 tons of foundry, and 11,400 tons of forge pig iron.

There were 90 furnaces in blast at the end of July compared with 97 at the end of June, 11 furnaces having ceased operation during the month and four having resumed production.

While a steady supply of Government work can be relied on in some sections of the trade, it is considered that the general domestic demand is unlikely to provide much work in view of consumers' reluctance to place orders before the expected price reductions at the end of the year. Hence hopes are mainly centered on a material expansion in export business. In this connection, the improvement in the American industry is being watched with interest. It is said that the British exporters' chances of obtaining a greater share of foreign business are hampered by the prevalence of price-cutting, although the leading American exporters are cooperating with the British as far as lies in their power.

Leading Continental European centers are confident of an expansion of business in the fall. In Belgium it is stated that a large proportion of the inquiry for iron and steel is on export account. Competition is severely felt, however, and the question of sending a delegation to Sweden with a view to stopping the increasing price-cutting from that quarter is under discussion.



Completed car, all welded, except for corner rivets, of high tensile, low alloy steel.

Annealing Wire in a Radiant Tube Furnace

By P. W. GRASSELL

President, Wilson Steel & Wire Co.

IN considering the purchase of additional wire annealing equipment, the Wilson Steel & Wire Co. had the thought in mind of obtaining a unit that would do as many different jobs as could possibly be done in one type of furnace. As manufacturers of many kinds of wire and wire products, the company's demand for annealed wire presented many problems due to the variation in products.

The furnace selected would be required to deliver a product with physical properties of maximum uniformity; also, it should produce an annealed wire which would be scale-free, and thereby reduce pickling cost; the quality of the annealed wire should be fully satisfactory to the buyer; and naturally, economy of operation, cost of equipment and capacity were also of primary importance.

Our study of possible furnaces finally narrowed down to the gas-fired tube type bell furnace, and three individual variations of this construction were investigated. Tube type bell covers have been widely used in the sheet and strip industry for some time and have proved most satisfactory. However, there are three general tube type furnaces: (1) Square bell type with vertical tubes, (2) rectangular bell

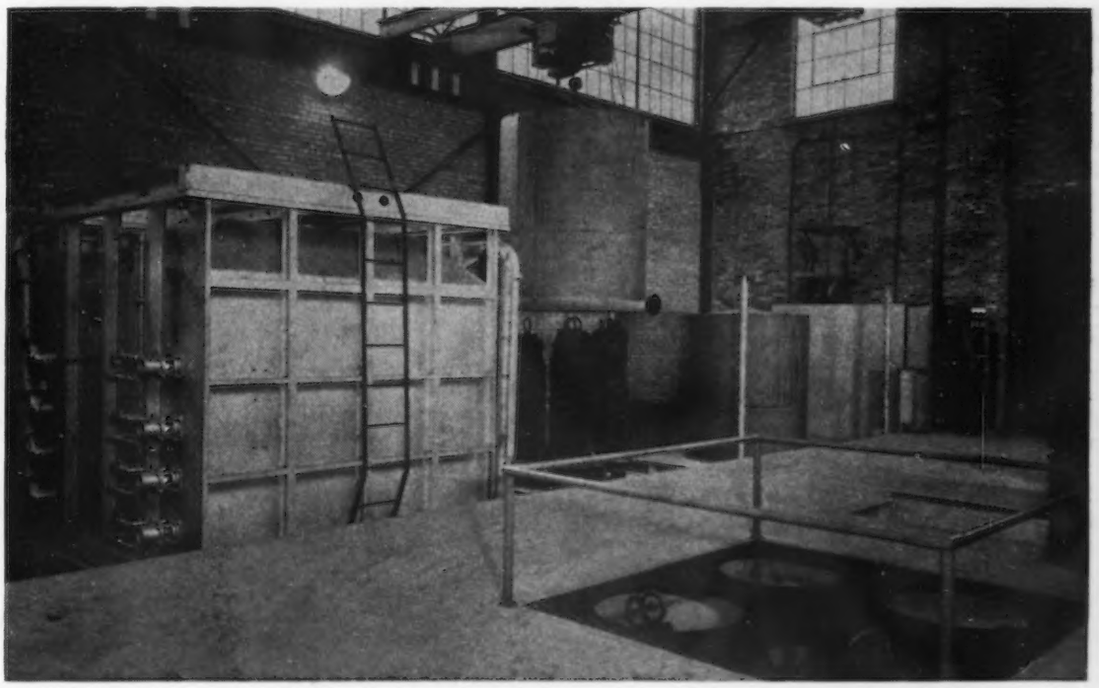


FIG. 1—In this general view of the square bell type annealing furnace with horizontal tubes, it is shown how one man handles the entire installation. The loading and unloading pits are in the foreground.

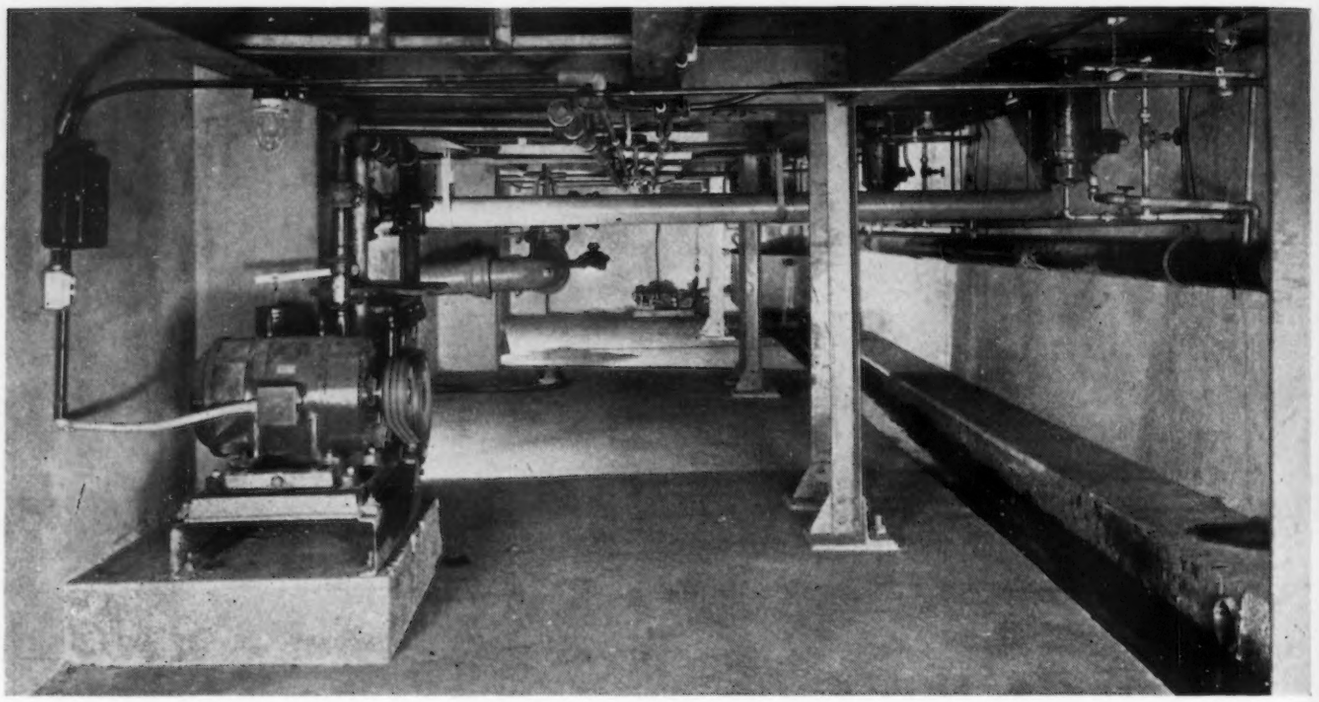


FIG. 2—This auxiliary equipment is installed beneath the furnace. Two of the recirculating fans are shown at the right.

type with horizontal tubes, and (3) square bell type with horizontal tubes. For the Wilson plant the third type was selected. In this particular equipment, supplied by Surface Combustion Corp., the gas is fired into horizontal cast alloy tubes giving a luminous flame which results in uniform temperature distribution, low flue gas temperature and high efficiency.

Fig. 1 illustrates the general lay-out of the equipment. A building was practically constructed around the furnace, thus furnishing opportunity to install cranes which are ideally suited to handle the cover as well as the material. The equipment as shown consists of a loading and unloading pit, the furnace heating cover, three inner covers, three bases, and the overhead cranework.

The furnace takes a charge of four stacks of coils loaded on spindles, several of which can be seen in Fig. 1. The maximum outside diameter of the coils is 30 in. and the wire may be piled to a height of 72 in. Four loaded spindles of 22 in. inside diameter give a net charge of approximately 13,000 lb. The spindles are placed on cast metal inner bases, which also may be seen in Fig. 1. They are arranged about a centrifugal recirculating fan, which has four discharge ducts, one leading to the center of each coil stack, the result being that heating and cooling are expedited during operation by forcing the air up through the center of each stack and pulling it downward to the fan intake at the bottom of the base.

An inner cover made of ¼ in. fire box steel, having an inside diameter of 6 ft. 7 in., is placed over the four spindles (one inner cover is on the farthest base and another is in position to be lowered over the stacks of wire in Fig. 1.) The inner cover is sand sealed at the bottom.

The heating cover which is moved from base to base and is placed over the inner cover weighs about 15 tons. The general construction, burner arrangement, and flue gas collectors are shown in Fig. 1. The motor valve controlling the flow of gas, the exhauster fan, which produces a stabilized suction on the tubes, and other appurtenances are all mounted on the cover but cannot be seen in Fig. 1.

The equipment is supplied with five thermocouples, two of which run to a two-point recording controlling pyrometer while the remaining three run to a three-point recording pyrometer. Of the two leads to the controlling instrument, one is installed on the inside of the heating cover, while the other is inserted in a stack of wire within the inner cover. The other three going to the recording pyrometer are placed at various points throughout the charge itself. This arrangement gives accurate temperature data at all times throughout the entire charge.

Fig. 2 shows the auxiliary equipment installed beneath the furnace bases. To the left in the foreground are the gas booster and gas meter, and in the rear on the floor are the recirculating pump and reservoir water tank. This water is used for cooling the bearings on the hot base fans. The piping where it is connected to the nearest base fan can be seen on the right-hand side of the picture.

A two-ton crane was installed with motor operated lift and travel, but manual racking mechanism for travel across the bridge was incorporated. This crane installation handles the loaded spindles and inner covers. Mounted on this crane is a 500-lb. high speed lift not shown in the picture. This was installed so that one man could handle the complete job, for at times it is necessary for him to load and unload wire bundles weighing as much as 500 lb. A 15-ton telepher type monorail hoist was installed for handling the heating cover. Only the end of the carrying rails can be seen in Fig. 1.

The 15-ton crane is operated by one man standing at the controls, as shown in Fig. 1, and this man can lower the hook, engage the lifting lug, lift the heating cover, move it to the next base position, and lower it over the guide post without leaving his position at

(CONCLUDED ON PAGE 47)

Rotary Stuerzelberg Furnace Produces High Grade Iron

THE Stuerzelberg process for the production of good, clean molten iron in a rotary furnace, using calcined pyrites (purple ores), left over after the elimination of sulphuric acid, and either coke, pitcoal or lignite as fuel, has recently been described by H. Hofmeister, of Duisburg, Germany, the equipment being patented and made by Demag Aktiengesellschaft.

This same unit has been conceived as a low-cost producer of pig iron in competition with the conventional blast furnace using, of course, equivalent grades of ore and coke. However, widespread experiments have shown that the Stuerzelberg furnace cannot economically compete, because the production per furnace unit is comparatively small and it consequently would be handicapped too much by overhead cost and amortization, as compared with the blast furnace.

However, the Stuerzelberg process is said to be able to better than hold its own with the blast furnace process in those cases where small quantities of iron are to be produced, owing to limited marketing possibilities or special conditions of freight, or where there is no coke suitable for the blast furnace process or when the coke available is too expensive, while pitcoal or lignite are to be had. The reduction can be done with nut coke or gas coke and also just as well with anthracite, charcoal or pitcoal, as the furnaces are heated with coal dust.

The various stages of the development of the Stuerzelberg process were originally described in *Stahl und*

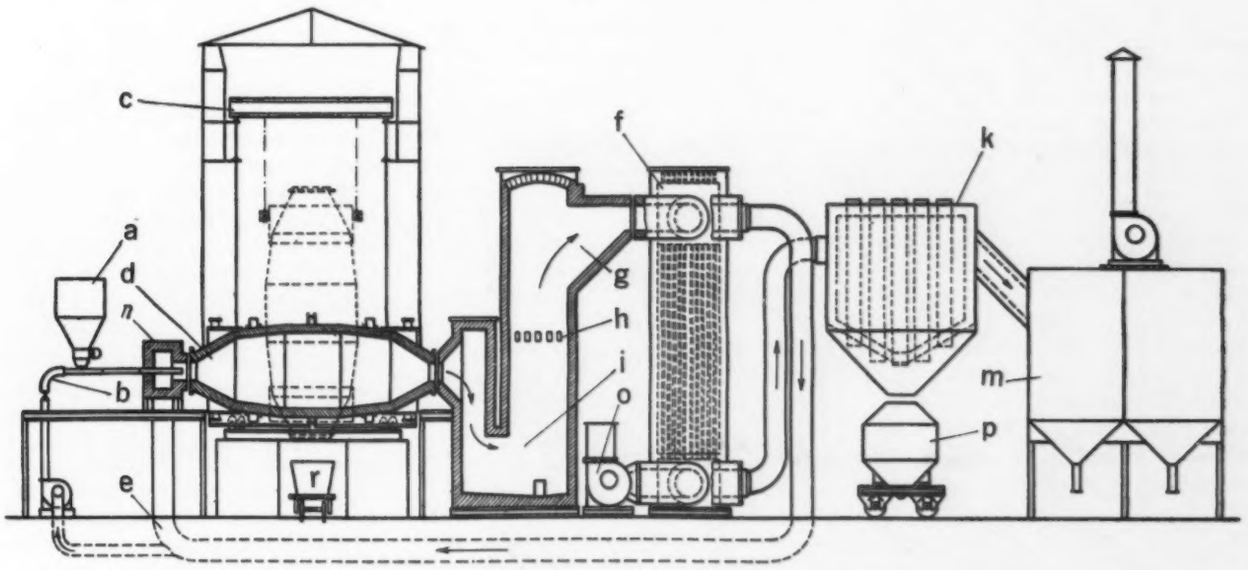


FIG. 1—The mode of operation of the calcined pyrites plant at Stuerzelberg.

a = Coal dust bunker.
b = Delivery air for coal dust.
c = Tilting crab.
d = Rotary furnace.
e = Hot air pipe.
f = Regenerators.
g = Combustion chamber.
h = Inlet for secondary air.
i = Slag box.
k = Preheater.
m = Filter plant.
n = Burner.
o = Fan for air combustion.
p = Charging bucket for mixture of ore, coal, and lime.
r = Hot metal ladle.

Eisen, No. 1, 1937, but the application on zinciferous calcined pyrites came later, and may be described as follows:

The calcined pyrites contain approximately 44 per cent Fe, 0.02 P, 8.20 Zn, 0.02 Cu, 0.40 Pb, 5 S, 0.20 Mn, and 10.20 SiO_2. The pyrites are roasted down beforehand in a sintering plant to a sulphur content of 0.1 per cent, then mixed with coke breeze and limestone in a certain proportion by special charging devices. The mixture is passed to a bunker and thence into a preheater, which is a retort furnace preheated by the waste gases from the rotary furnace. Sulphur need not be eliminated beforehand from the calcined pyrites, because it has been found that the special treatment the charge undergoes in the rotary furnace produces an iron with a low sulphur content.

The drying of the mixture in the preheater is essential, as otherwise the moisture that gets into the rotary furnace along with the mixture would destroy the dolomite lining. Just before the end of a preceding melt, the preheated mixture is passed from the retorts by means of bottom gates, through a funnel into a bucket. This bucket carries the mixture to the rotary furnace, where it is charged. This entire cycle is shown in Fig. 1.

When charging, the rotary furnace is tilted 45 deg., and during the working cycle the bottom opening of the inclined rotary furnace is closed by a cover to prevent the mixture running out. The steel jacket of the rotary furnace is 12.5 ft. in diameter and about 34 ft. long. Toward the two ends the rotary furnace becomes conical in shape and has two rings which run on four rollers, and these rollers are installed in special equipment which makes it possible for the rotary furnace to be tipped.

The mixture of ore, coal and lime put into the rotary furnace is heated by a coal dust flame up to about 2730 deg. F., whereby a pasty ferrous silicate envelops the sponge and protects it in this way from burning. The lime has the effect of liberating gradually the ferrous oxide from the ferrous silicate slag; the ferrous oxide then being reduced by the carbon. As more carbon is added to the charge than is required for the reduction, the reduced iron absorbs carbon, melts and, in consequence of the rotating movement of the furnace, detaches itself from the slag. It then can be poured separately from the slag, as in Fig. 2.

Although the slag in the case of the Stuerzelberg process is kept highly basic, out of regard for the desulphurization, and hence is very viscous, yet the continuous turning over of the charge results in an excellent desulphurization, if necessary, down to 0.01 per cent. The carbon content too can be changed according to requirements by recharging carbonizing agents.

As already mentioned, the vessel of the rotary furnace is heated by a coal dust flame; a portion of the normal air of combustion obtained from regenerators at a temperature of 750 to 930

FIG. 2—Rotary furnace tilted for teeming. The preheater for the mixture of ore, coal and lime may be seen in the background.

deg. F. being brought to a higher pressure by means of a special fan and used for delivering the coal dust. The waste gases of the furnace, which have been augmented by the oxygen expelled, the carbonic acid of the lime and the zinc oxide formed, pass at the rear of the rotary furnace into a very large slag and dust catcher where the main impurities, chiefly ash from the coal dust, are separated from the waste gases. The adjoining, spacious gas flue going up to the regenerators serves a like purpose. In order to initiate the combustion of the carbon monoxide in the waste gases, secondary air is admitted to the waste gases in this gas flue. This combustion increases the temperature of the waste gases by 390 to 570 deg. F.

The regenerators are packed with perforated brick. In order to be able to get rid of the ash residues of the coal dust, which, mixed with zinc oxides, still deposit in large quantities there, the arches of the regenerators and their covers are designed in such a way that accumulations of dust can easily be removed with the help of a special device.

After the waste gases have left the regenerators, they pass into the preheater already described where they are used to dry and heat the mixture of ore, coal and lime for the next melt. The large number of baffle plates in the preheater also help a lot to separate the dust. After passing through an exhaustor which serves to produce the depression in the entire furnace system, the waste gases pass into a bag filter where the zinc oxides are separated.

Even though a portion of the zinc oxides precipitates already in the interposed apparatus, it is in the bag filter that the main portion is separated. It is also here that the purest oxides are separated and this yield, which finds a ready market, is an important asset of the process. As harm would be done to the bag filter if the temperature were above or below that necessary for the waste gas, special devices are provided to keep the temperature always at the correct degree. The waste gases are evacuated to atmosphere by an exhaustor at the rear of the filter.

The slag, which is kept highly basic for desulphurizing the pig iron, can under certain circumstances be used as a high-grade by-product for making cement or fertilizing lime. The slag at Stuerzelberg contains for instance 27 per cent SiO_2, 5 Al_2O_3, 57 CaO, 3 to 5 MgO and 2 to 4 per cent Fe.

In contrast to the "Renn" process, frequently talked about at present in Europe, by which iron ores with carbon are reduced in a pasty state in a long rotary furnace and by which the low carbon blooms produced, that are mixed with slag, have more or less high sulphur contents and still have to be freed from the slag in order to be melted down in a special furnace, the pig iron in the case of the Stuerzelberg process is produced in *a molten state practically free from sulphur and completely separate from the slag* and, when required, can be cast direct for products of iron foundries by adding alloying agents. The Renn process is a continuous one, whereas the Stuerzelberg process is carried out in individual melts. The pig iron produced so far by the latter process is said to be in great demand from plants making alloy and special steels as an admixture for high-grade products, as the iron is supposed to be equivalent to the best Swedish charcoal iron used for such purposes.

FROM giant alkali stripping systems to paint completes the cycle of finishing metals. Also included in this review of announcements of the suppliers are new forms of rubber and plastic tank linings, shot blast cleaners, polishing equipment, plating accessories, an improved metallizing gun and a variety of spray guns for paint and lacquer, together with respirator units for worker safety, also strip heaters for bake ovens.

Current Progress in Equipment for Finishing Metals

By FRANK J. OLIVER

Associate Editor, The Iron Age

WHAT is believed to be the largest alkali stripping system was recently built by *Detroit Rex Products Co.*, 13005 Hillview Avenue, Detroit, for removing of paint from rejected metal parts in preparation for repainting. The system consists of a hot alkali strip tank of 15,400-gal. capacity, in which the work is immersed for 20 min.; hot alkali sprays of the overhead type; cold water sprays; and a hot water rinsing tank of 8000-gal. capacity in which the work is submerged for 2 min. There is also a mixing and preheating tank of 1500-gal. content. All three tanks are heated by steam coils.

The tanks proper are welded of ¼-in. plate and structural reinforcements. Approximate overall dimensions are: length, 87 ft. 6 in.; width, 13 ft. 2 in.; height, 13 ft. 6 in.

Tank Liners

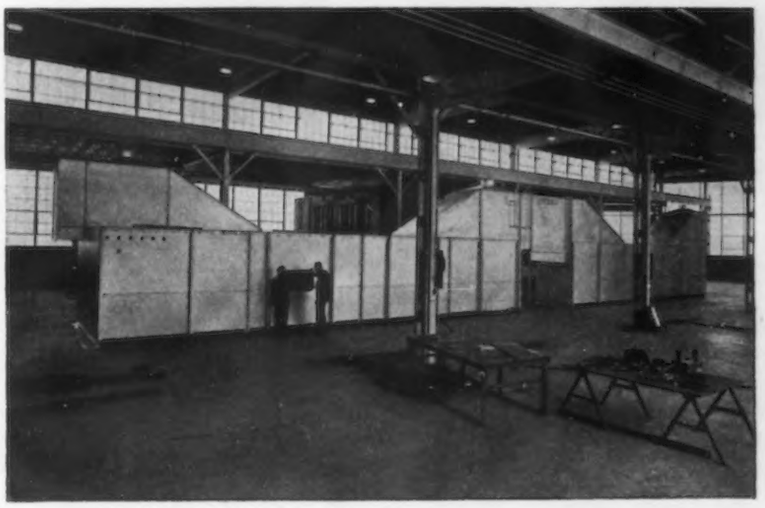
A NEW and improved seamless rubber lining for tanks and other containers for plating and chemical service is announced by *Collord, Inc.*, 7048 Lyndon Avenue, Detroit. The coalesced multiple plies of latex rubber formulation gave it the name Multi-Ply S.R.L. The material is "tailored" to the tank in a single, seamless, smooth finish, the whole being efficiently bonded to the metal or wood, according to the maker.

PLAST-O-LINE is a thermoplastic tank lining possessing unusual flexibility as well as resistance to chemicals and acids, according to the maker, *Heil & Co.*, 3088 West 106th Street, Cleveland. Tests conducted in standard bright nickel solutions show no contamination from this lining. It is resistant to most commercial acids up to 50 per cent concentration, with the exception of chromic and hydrofluoric acids, and will resist weak organic acids, as well as alkalis at all concentrations and at temperatures up to 212 deg. F. It will resist alcohol concentrations up to 20 per cent. Plast-O-Line will not, however, resist constant mechanical abrasion.

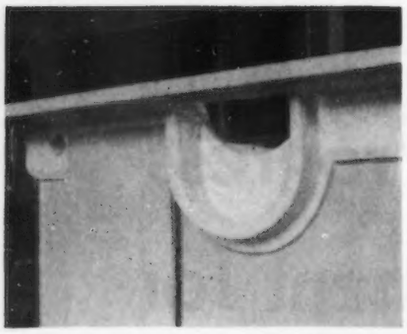
The *Heil* company is also introducing complete acid brick lined tanks for chrome plating, muriatic acid and hydrofluoric acid pickling. Such brick linings offer greater resistance to mechanical abrasion, are good heat and electrical insulators and are practically non-corrodible in most acid solutions. Three types are made.

Speedier Parkerizing Process

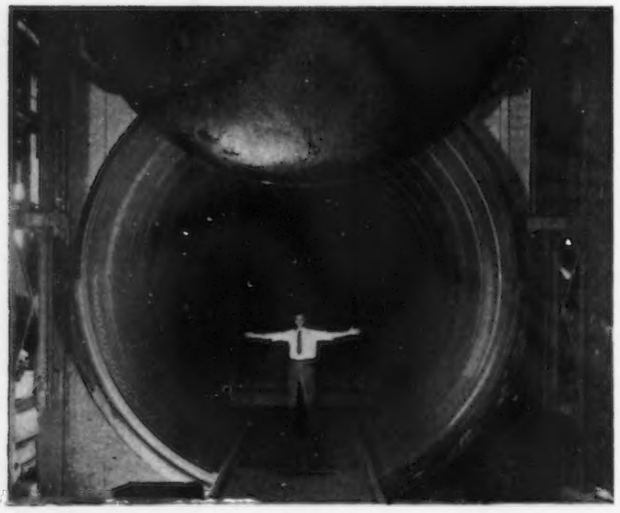
FASTER processing time and lower operating temperatures are claimed for a new Parkerizing process, recently announced by the *Parker Research Laboratories*, Detroit. Instead of the former 60 to 90 min. processing time by the tank method, only 30 min. is now required. The new



LARGE Detroit-Rex alkali stripping system, showing stripping tank at left and hot water rinse tank at right. The premixing tank is behind the A-section on a raised platform.

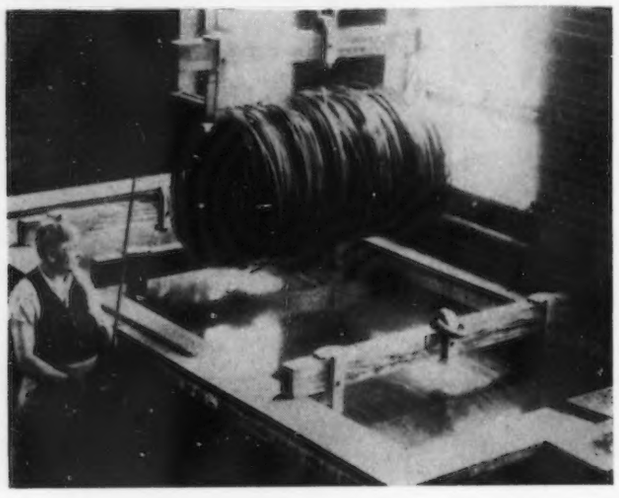


units made by the *American Foundry Equipment Co.*, Mishawaka, Ind. The new model has a load capacity of 2 cu. ft. and is marketed as a 20 x 27-in. size. It is intended for a plant having a limited volume of small pieces to clean or as an auxiliary unit to handle light loads. In principle of operation it is similar to the larger sizes, except that a wear-resisting rubber conveyor is used instead of a metal conveyor for tumbling the work. The machine



ABOVE

COLLORD, INC., has developed a new method of producing multiple-ply seamless rubber lined tanks, said to be immune to blisters and capable of standing high temperatures.



AT LEFT

GOODYEAR TIRE & RUBBER CO. has installed at its Akron plant a 90-ton curing heater, with 17-ton door inside the shell, for vulcanizing Plioweld installations to various types of pressure and storage tanks, up to railroad tank car shells. In the Plioweld process, a protective layer of rubber is applied to the cemented metal surface.

AT LEFT

THE welded steel tank shown used for pickling copper wire rod coils is lined with 3/16 in. of Triflex rubber—a combination hard-and-soft rubber lining developed by the B. F. Goodrich Co., of Akron. Protection against physical abuse is given by a 4½-in. thickness of acid-resisting brick.

solution reacts at 180 deg. F. instead of 212 deg., formerly found necessary, resulting in lower heating cost. The improved liquid chemicals also develop less sludge in the processing tank and produce a finer grained, smoother coating. There is less change in part contour and a minimum of build-up in fine threads. The shortened processing time makes possible the use of relatively smaller tanks.

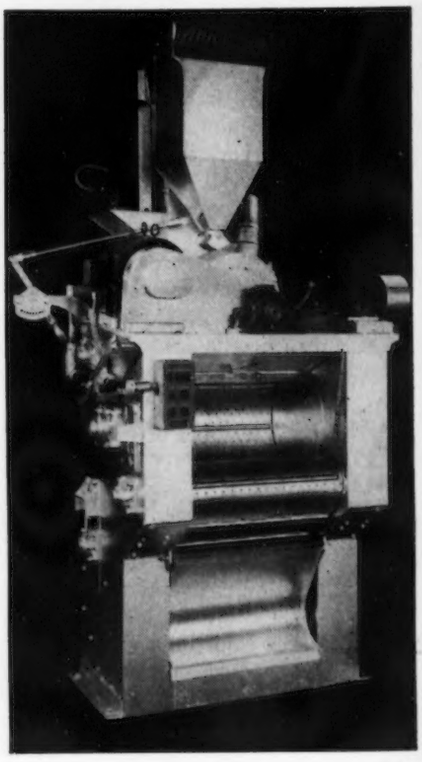
Cleaning Barrel

A SMALLER size Wheelabrator Tum-Blast has been added to the line of airless centrifugal blasting is said to be thoroughly protected from the action of the blast at all points of wear, and bearings and working parts are sealed from dust. A total of 6-hp. is required for operation.

Polishing Adhesives and Grains

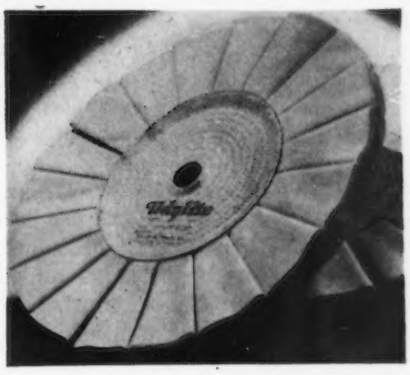
NUGLU is a new type of water soluble abrasive adhesive made by the *J. J. Siefen Co.*, 5657 Lauderdale Street, Detroit. Among the advantages claimed for this bond for polishing wheels, belts or disks are: Flexibility under all conditions and resistivity against temperatures up to 2000 deg. F.; tenacity of grip of abrasive grains, resulting in fracture of the grain itself rather than rolling away of the whole grain, thereby giving faster cutting action and a finer finish with more "color"; rapid setting under heat, making it possible to force-dry wheels without harmful effects; and low surface tension and high penetrating qualities, permitting it to penetrate the pores of the grains as well as the cloth of the wheel. Nuglu can be applied cold with a brush. It is made in three types: Type No. 245 is for grains finer than No. 200 and down to the FF grade; type No. 236 is for abrasives from Nos. 100 to 200, and type No. 237 is for grains coarser than No. 100.

THROUGH an error in our issue of June 2, page 43, the impression was given that Idilite and Idilon were new cements for holding polishing abrasives. Instead, these are the tradenames of abrasive grits recently developed by one of the largest manufacturers of abrasives expressly for use with cements made by the *M. P. Iding Disc Grinding Compound Co.*, 3534 W. Pierce Street, Milwaukee, and sold through this firm. There are two types of Idilite grains, which are aluminum oxide abrasives. The ET types, or etched grains, possess high capillarity and sharp cutting qualities.



THIS new and smaller size (20 x 27-in.) Wheelabrator Tum-Blast airless centrifugal cleaner is for small batch work.

SIEFEN Nuglu is a new polishing wheel adhesive made in three types according to the range of grit sizes.



UDYLITE Masterfold buffs are produced in a variety of types according to density and treatment of the specially folded cloth.

FOR use in high speed, hot nickel plating solutions of high acid content, Hanson-VanWinkle-Munning is offering the Corning glass cloth anode bag.

THE Wellman cast anode of fishbone design is said to have four times the thickness of the average anode at the solution line.

Type NT or non-etched grains, on the other hand, possess long wearing qualities and are said to produce much brighter finishes when used with Iding cements. Idilon is a silicon carbide abrasive grain, chiefly applicable to polishing gray iron of all kinds.

Cloth Buffing Wheels

MASTERFOLD is the name of a new buffing wheel, made by the *Udylite Co.*, Detroit, in which the cloth is folded in such a manner that it presents a multiple of edges that are said to cut instead of rub and at the same time provides air spaces between the cloth plies to dissipate the friction heat generated by pressure of the work. It is claimed that the buff bites into the metal with a minimum of pressure and will reduce buffing time anywhere from 25 to 75 per cent. Composition is held and pocketed so that the efficiency of the operation is maintained with fewer applications of the stick to the wheel. It is also said to produce a better finish. The buffing action is uniform over the face of the wheel and ridging, pitting and chattering are said to be eliminated. Such buffs can be used on automatic or hand operated machines. Optimum speed is 8000 ft. per min.

Plating Accessories

GLASS cloth anode bags of one-piece, tubular construction are now being offered by *Hanson-Van Winkle-Munning Co.*, Matawan, N. J. Developed in cooperation with the Corning Glass Co., these bags are intended to resist the destructive action of sulphuric acid in high speed, hot nickel plating solution, with low pH (high in acid), which render ordinary cloth anode bags short lived. Glass cloth is quite flexible, and the anode bag is not sewed, but is sealed by a special process at one end and protected from raveling at the other end. Besides being recommended for acid solutions, this glass cloth bag is also useful for many alkaline solutions.

TYPE E Metco metallizing gun weighs only 3¾ lb. The sealed gear case is made of Dowmetal, with brass housings for the ball bearings. Gas head is a dense pressure tight bronze, and the wire nozzles are also of bronze, with a hardened, heat-proof lining.

AFTER two years of testing and research, the Wellman Bronze & Aluminum Co., of Cleveland, has introduced a new Fishbone anode for chromium plating. Cast to shape, instead of being rolled, the anode has more edges than other types and because of its distinctive shape is said to increase the throwing power of the plating solution. Standard pattern is 38½ in. long by 6 in. wide and it is 1 in. thick at the solution line. The anode material is a patented antimony-lead alloy, and the hooks are cast bronze with lead-tin covering. Weight of the standard size is 21 lb. These

DEVILBISS type MBC-527 spray gun for porcelain and other ceramic materials incorporates strengthened wearing parts and materials that increase the life of the gun under severe abrasive conditions.

o o o

BELOW

WITH one downward motion of the Snaplock cover, the cup is gripped instantly in the new Paasche type BU high production airbrush.

AT RIGHT

A FAN shaped spray from 1 to 18 in. wide is thrown by this Matthews centrifugal electric painting machine, weighing 5½ lb.

o o o

BELOW

BY separating the gun from the container in this Eclipse B+ unit, it is possible to reach surfaces not accessible to a gun cup.

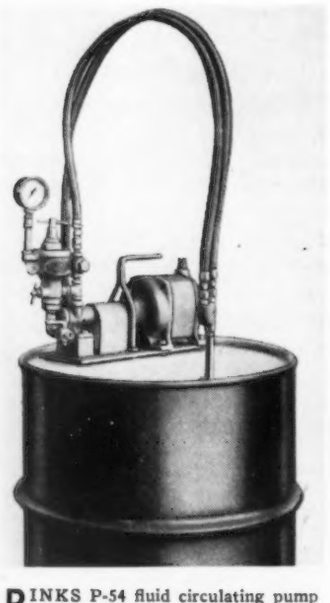
anodes are being distributed through the organization of *Fred B. Stevens Inc.*, of Detroit.

Metallizing Gun

EXTREMELY fine coatings can be obtained at production speeds in the type E improved Metco metallizing gun recently placed on the market by *Metallizing Engineering Co., Inc.*, 44 Whitehall Street, New York. Improved nozzle and jet construction reduce gas consumption and result in the deposit of the maximum amount of metal sprayed. A multiple jet turbine gives two speed ranges to cover all the commercial metals being sprayed. Only 60 lb. of air pressure is required and the gun operates equally well from acetylene tanks or generators at a maximum pressure of 15 lb. per sq. in. As with others of its type, metal wire is automatically fed into the gun at an adjustable speed, where it is melted by an oxy-acetylene or hydrogen flame, atomized by compressed air and sprayed on any base metal.

Spray Guns and Related Items

CARBOLOY inserts are used in the orifice of the fluid tips and the needles are pointed with the same material in an improved type of spray gun especially designed for resisting the abrasive action of porcelain and ceramic materials. A product of the *DeVilbiss Co.*, Toledo, it is a modification of the type MBC gun. Gun body is finished in natural alumilite, giving a hard, wear-resisting surface. The hook is replaceable when worn or damaged. Trigger pivot screw hole bushings and reinforcements inserted in the trigger at the contact points of the needle are hardened steel.



BINKS P-54 fluid circulating pump for lacquers and varnish gives results comparable to those obtained with a pressure feed tank.

LESS than 1 sec. is said to be required to attach or detach the Snaplock cup on the new type BU high production airbrush, made by *Paasche Airbrush Co.*, 1909 Diversey Parkway, Chicago. With one downward motion of the cover, it grips the cup instantly and it remains attached even if the operator fails to tighten the knurled grip nut, an operation that is necessary in order to avoid leakage. The continuous rim provides a positive seating, and the clamps are claimed not to chew the edge or cause low spots.

A UNIT bridging the gap between the cup gun and a full size spray unit is found in the B+ pressure feed spray unit, recently introduced by *Eclipse Air Brush Co., Inc.*, Newark, N. J. Available in 1 and 2-qt. sizes, this unit has all the refinements of control and adjustment found in larger units, such as pressure regulator, air gage, shut-off valve on air supply, three-way release valve and safety valve, all mounted on the lightweight control head. The container screws into the control head and 4 ft. of air and fluid hose connect the container to the gun. A T-shaped handle provides for easy carrying of the container from the belt or from a ladder. Paints and enamels can be applied at pressures as low as 10 lb. per sq. in.

PAINT is thrown out in an even fan-shaped spray in a newly improved centrifugal electric painting machine made by *J. H. Matthews & Co.*, 3942 Forbes Street, Pittsburgh. Paint stream can be adjusted from less than 1 in. up to 18 in. wide. It is said to do a two-coated stipple job in one operation and a painter can cover 1500 sq. ft. of surface in 1 hr. Self-contained unit consists of a 1/10-hp. motor, gun and 3-pint paint can. It applies any non-inflammable finishing material and lends itself to a variety of uses.

MEANS for delivering clear lacquer, varnish and other non-pigmented finishing materials direct from the original shipping container to the spray gun is provided in a self-contained fluid circulating pump recently placed on the market by *Binks Mfg. Co.*, 3114 Carroll Avenue, Chi-

DEVILBISS type DGA air dusting gun is operated simply by closing the hand around the gun in any reasonable position and squeezing the thumb button on the valve stem. A removable brass nozzle is screwed into the die cast body. Air consumption is 13 cu. ft. per min. at 80-lb. pressure.

THE Binks helmet type respirator has a muslin hood attached to the cap and fitting snugly over the shoulders. Window is of pyralin. Air is supplied off the gun line.

cago. The unit gives results similar to those obtained with a pressure feed tank. Motor, pump, relief valve and fluid feed regulator are mounted on a steel base plate which may be secured to the top of the drum or attached to brackets fastened to the wall. Either electric or air motor drive is available.

LACQUERS and synthetic enamels usually contain butyl acetate and other solvents that have a destructive action on rubber. *United States Rubber Products Inc.*, 1790 Broadway, New York, is therefore offering its Peerless synthetic lined lacquer spray and solvent hose. The inner tube, made of a high grade synthetic rubber material, will resist the action of oils and commonly used paint solvents, in addition to lacquer solvents, and is said not to discolor delicate shades of paint. The body, of braided reinforcing plies of high grade cotton, has a smooth molded black cover of oil and abrasion resisting rubber stock. This synthetic lined hose is made in sizes ¼ to ¾ in.

Respirators

BINKS MFG. CO. is offering two new types of respirators for use around painting operations. No. 7 respirator is a twin cartridge type that fits the face with a fume tight seal. The other is a helmet type especially adapted to overhead and outdoor paint spray work. An air hose is taken off a T-connection to the spray gun and is attached to the back of the cap. The small amount of air thus introduced pushes downward and out, thereby keeping fumes from the operator.

THE *Acme Protection Equipment Co., Inc.*, 3645 Liberty Avenue, Pittsburgh, announces Bureau of Mines official approval for its Full Vision gas masks Nos. 4 and 4A for protection against organic vapors. The safety glass lenses permit the wearer to see the same as when not wearing a mask. Another feature is the dead air check valves on the outlet ends of the fresh air ducts. These automatically open and close upon inhalation and exhalation, and prevent accumulation of exhaled air in the fresh air ducts. The rubber face piece is fully molded to face fitting proportions, and the head harness buckles are attached in such a way as to eliminate uncomfortable pressure points.

Finishing Materials

ALUMINUM sparkle Rip-pl is the name of a new low bake, oil type finish recently introduced by the *Hilo Varnish Corp.*, 42 Stewart Avenue, Brooklyn. Its metallic glistening appearance may be varied by changing the quantity of aluminum powder used per gallon. This finish may be used on any non-porous surface. It is moisture and oil resistant and is proof against alcohol and grease. In use the raw material is first mixed with aluminum powder, then reduced with naphtha before being sprayed. After spraying, the article is baked at 200 deg. for 1½ hr.

ABOVE

ACME Full Vision gas mask No. 4A for organic vapors is provided with 27 in. of flexible hose and carrier. The No. 4 mask is of the front-lace carrier type, with 10 in. of flexible corrugated hose.

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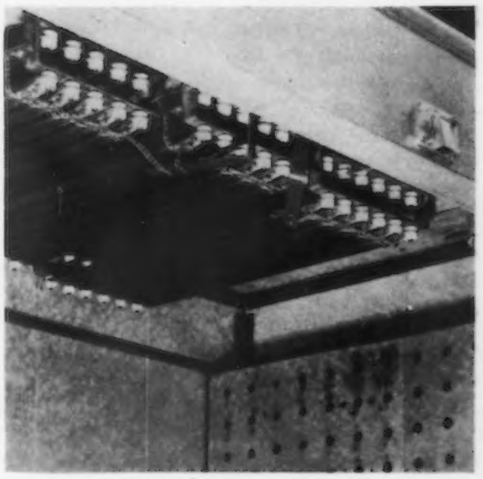
AT RIGHT

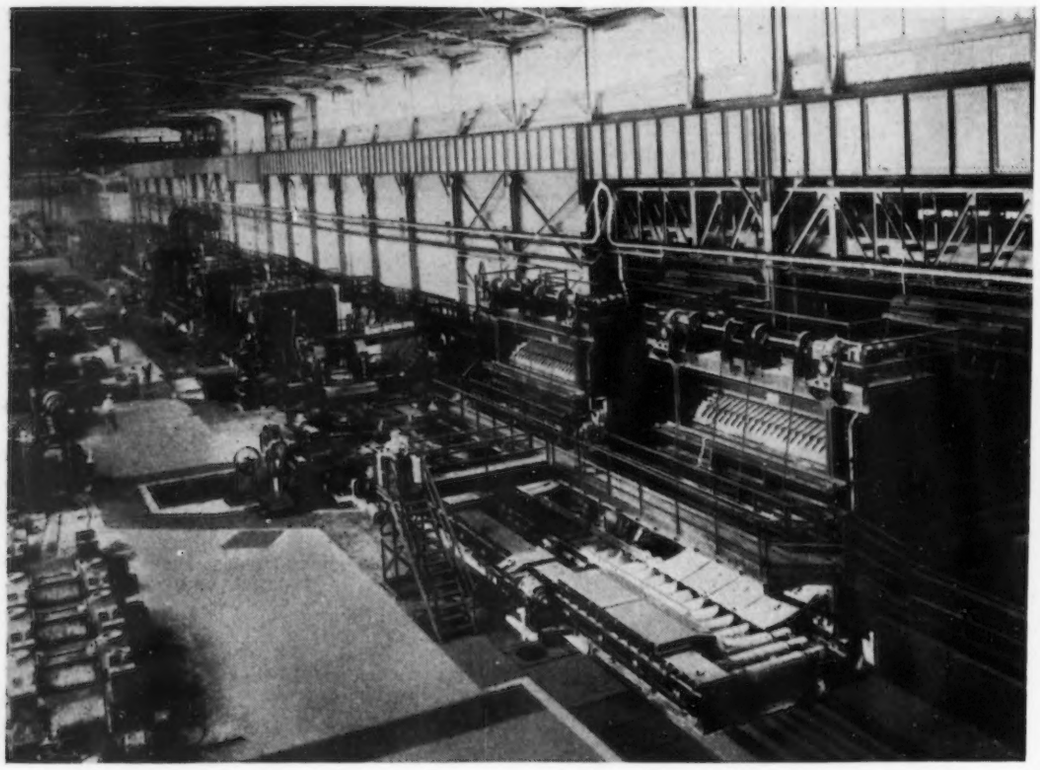
34 GENERAL ELECTRIC strip heater units of 1-kw. capacity are used in the 190-cu. ft. interior of ovens made by the Porbeck Mfg. Co., St. Louis, for drying painted and enameled parts. Maximum oven temperature is 450 deg. F., with two air changes per min. possible by cross-current recirculation. The strip heaters are connected in parallel by special bus bars formed to fit snugly over the terminal studs, which are offset about ¾ in.

A NEW line of wrinkle enamels, known as Duart, are being supplied in every color, including white and light pastel shades, by *Maas & Waldstein Co.*, 435 Riverside Avenue, Newark, N. J. They are said to bake hard and wear resistant with a short baking schedule. Uniform wrinkling without glossy spots, "shiners," or "fish eyes," is also claimed. The product is light in body and can be sprayed like synthetic enamel, giving a high coverage per gallon. The patterns can be varied from a very fine and uniform to a coarse and heavy structure. Duart wrinkle enamels are manufactured under license from *New Wrinkle, Inc.*

D. C. rust preventative is a waterproof, tenacious compound for the protection of metal parts against rust. It is supplied in heavy paste form by *D. C. Cooper Co.*, 26 East 18th Street, Chicago. Through the application of heat, the paste may be reduced to liquid form and the article immersed in it. It can also be reduced or cut with gasoline or other petroleum solvent to a brushing or spraying consistency. The maker states it will not become rancid, nor will it oxidize after the solvent has evaporated, nor will it bleed at summer temperatures.



Inland's 44



AT LEFT

OVERALL view of mill with slab reheating furnaces in foreground and roll storage at the left.

A SIX-YEAR building program was completed recently by the Inland Steel Co. with the initial operation of a 44-in. continuous strip mill at the Indiana Harbor plant. Beginning with the 76-in. continuous mill installed in 1932, a blast furnace completed just recently, a tin mill and various additions, a battery of coke ovens added last year, and nine open hearths built last year and this, Inland now has brought to an end construction on an entirely new flat rolled setup. Excluding the 76-in. mill, about $30,000,000 has been spent on these improvements.

Though rated nominally at 45,000 tons a month, Inland officials estimate the annual output of the new Mesta mill and auxiliaries at a conservative 400,000 tons. Previous hot rolled finishing capacity of this type was embodied in the 76-in. mill which can turn out about 700,000 tons a year. It is apparent therefore that the 44-in. mill adds more than 50 per cent to this capacity.

About the only product that can now be rolled that the 76-in. mill could not handle before is rolled edge strip in narrow widths. Chief advantage of the 44-in. mill is that it is possible to hold much more closely to gage and width in narrow sizes than on the larger mill. It is estimated that about 25 per cent of the tonnage previously rolled on the 76-in. unit may be diverted to the smaller mill, this material being ordered mostly for automobile frame stock, tin plate, barrel fabrication, etc. Operating problems, of course, will be greatly simplified and in boom times delivery jams will be lessened. Executives do not believe a great increase in customers will result from the new mill. It will simply enable existing accounts to be better served and provide another selling point for the company.

Boasting a maximum delivery speed of 2200 ft. a min., the mill is capable of producing a mile of steel a yard wide in slightly less than three minutes. Widths range to 40 in. and thicknesses from 20 gage to ⅜ in. Normal operating speeds will run from 1100 to 2000 ft. a sec.

Already filling all available lake shore space with its existing plant, Inland, in order to find room for the 44-in. mill, set huge sand dredges to work pumping sand from the lake bottom into an area surrounded by Inland piling cells, which were capped with concrete. Cinder and granulated slag also were used as fill-in materials. Wooden piling 55 to 75 ft. long driven into the original lake bed was necessary to stabilize the concrete foundation of the mill. An additional 300 acres of lake has been acquired by the company and is being filled in gradually for future growth.

Also on fill-in land is the 76-in. mill, the new unit being so constructed as to operate end to end with the older mill. A 46-in. bloomer between the two rolling mills supplies the slabs for both mills. With a capacity of over 200 tons an hour, the blooming mill can adequately supply the needs of both rolling units, as they rarely average 100 tons an hour.

The slabs this new mill will accommodate are expected to average 3600 lb. in weight, 24 in. wide, 4 in. thick and 7 ft. 10 in. long. The ranges will extend from 1000 lb. to 7500 lb. in weight, 10 in. to 42 in. wide, 3 to 5 in. thick, and 6 ft. to 15 ft. long. The mill will roll steel ranging from low carbon to 95 per cent carbon and 3½ per cent silicon.

Slabs are inspected in the slab yard between the 44-in. and 76-in. mills, and are fed into the yard direct from the blooming mill. Magnets and chain slings handle the slabs in the yard, while overhead cranes take them to the furnaces. Capacity of the yard is about 18,500 net tons.

Two Rust continuous slab heating furnaces of 50-ton an hr. capacity each have been installed, with provision for a third. Triple oil-fired, an average combustion air temperature of 700 deg. F. is maintained with a maximum of 1300 deg. F. Fuel consumption averages 1,650,000 B.t.u. a ton, while average B.t.u. input an hour a furnace is approximately 83,000,000. The nor-

44-in. Hot Strip Mill

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By ROBERT BINGHAM
Chicago Editor, The Iron Age

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mal temperature of slabs as they leave the furnace is 2250 deg. F. A so-called soaking zone provides uniform heating and a duplicate record of the exact finishing temperature of the strip is made at the slab reheating furnace enabling the heater to deliver properly heated slabs to the mill at all times.

A scale-breaking vertical edger is the first unit of the mill and is driven by two 300-hp. 440-volt, a.c. induction motors. Following are four roughing stands driven by 2500-hp. a.c. synchronous motors, and a crop shear to square the strip before it enters the finishing stands.

Variable speed d.c. 2500-hp. motors control the six four-high finishing stands. Hydraulically synchronized to the last finishing stand is a flying shear, which cuts the strip in lengths ranging from 11 ft. to 22 ft. while the mill is running continuously at various speeds up to 2200 ft. a min.

AT RIGHT

THIS recorder maintains any desired temperature of the strip as it enters the finishing train.

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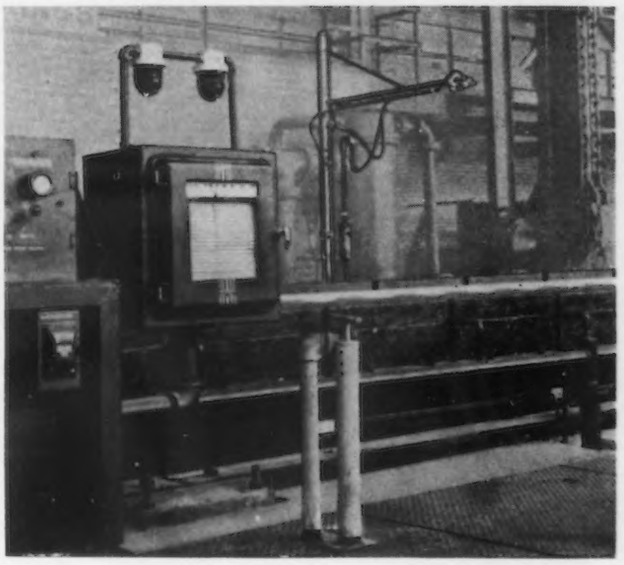


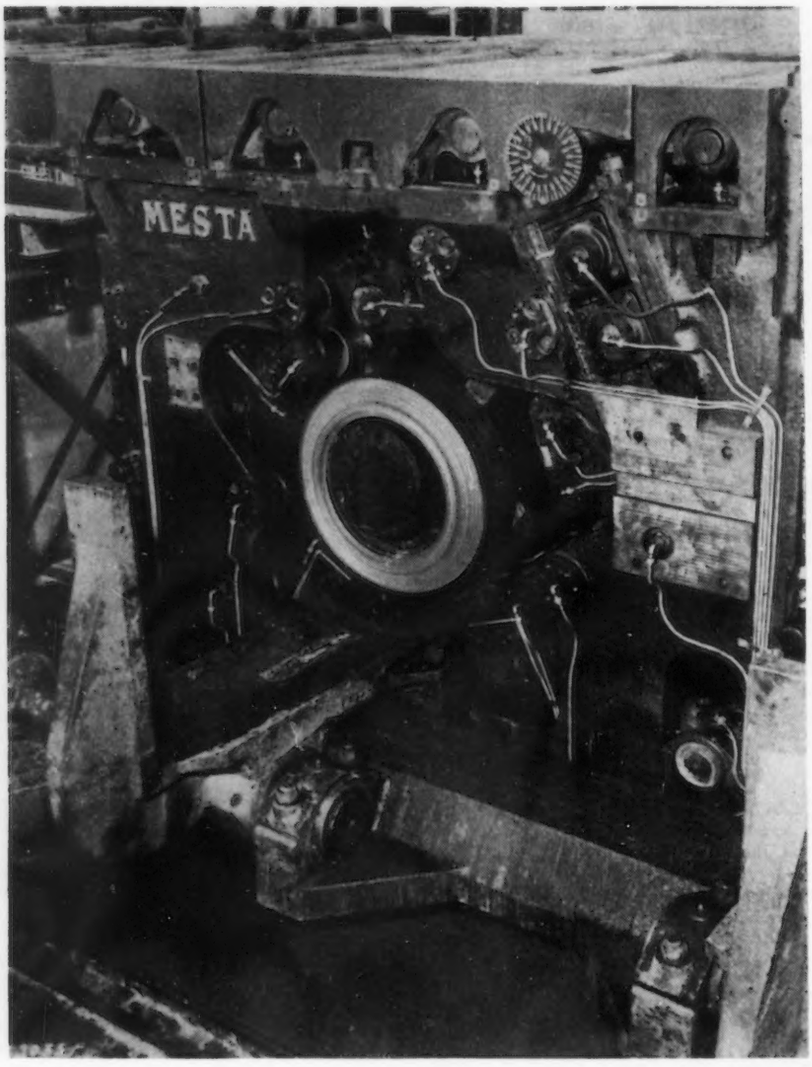
BELOW

SCALE may be seen cracking from this slab as it passes through a scale-breaking vertical edger.

Between the flying shear and the coilers stretches about 333 ft. of runout table. Chilled cast iron ground rollers with steel shafts are driven in pairs, a single motor to a pair. Ward-Leonard controls obtain flexibility throughout the entire range of speed of the mill. Any speed desired up to 2200 ft. a min. is available in each stand. The table rollers require 217 separate motors.

The coilers, which will operate up to the highest speed of the mill provide a tightly wound, uniform coil. Individual gates to each coiler are located on the runout table. A free mechanism is assured at all times, as while one is winding the other is discharging. Coiler rolls hold the strip, preventing a loose, flapping coil. From the coilers the strip cools on conveyors for 20 to 35 min. before being taken to coil storage.

At the finishing end is equipment to handle both flat and coiled strip. The latter consists of the coil conveyor and coil storage for delivery to the cold strip mill or other departments. A line is provided for side trimming, leveling, shearing and piling sheets cut to lengths. A scrubbing and drying unit



ABOVE

COILER rollers insure a tight uniform coil. This mechanism operates up to the maximum delivery speed of the mill, 2200 ft. a min., there being two such coilers.

AT RIGHT

CONTROL board and flying hot shear. The latter is hydraulically synchronized to speed of last finishing stand.

is followed by a plate finisher consisting of a leveler, shear, trimmer and piler. A single stand skin pass mill is available for material requiring skin rolling. Additional space for future equipment has been provided in the cold finishing building.

To aid in checking and controlling orders as they pass through the mill, a rapid temperature recorder which indicates the exact finishing temperature of the strip at all times has been installed. A new type recorder at the entry side of the finishing train maintains any desired temperature of the strip as it enters the finishing stands, a signal light indicating when this temperature is reached.

A finishing department laboratory for metallurgical control is located near the finishing stands, and is equipped with the latest hardness and ductility testing machines. For further tests the specimens are sent to the main laboratory. The shipper and foreman offices also are in this building.

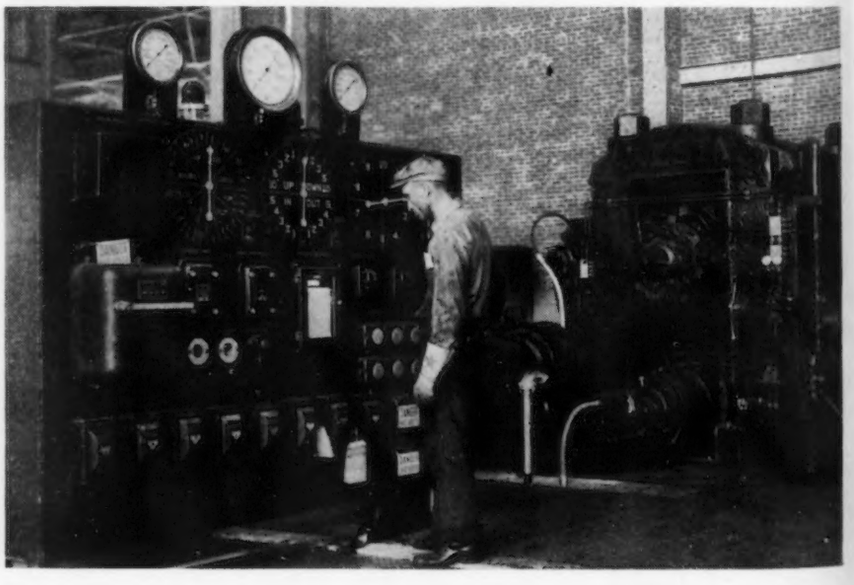
Sufficient air for maintaining the motor room under a slight positive pressure is supplied from outside the building by a ventilating fan of 40,000 cu. ft. a min. through an oil filter air washer. Cool air for the main drive motors is taken from the motor room through the motors, through air coolers and discharged back into the motor room.

The motor room also contains the motor generator sets for the runout tables, loopers and auxiliary exciter motor generator sets used with the table roller control system. Power is supplied the motor room from company generating stations over 6600 volt, 3 phase, 25 cycles transmission lines.

Eleven cranes are necessary in connection with the mill ranging from a 10-ton auxiliary hoist in the slab yard to a 60-ton main hoist in the mill building.

A pumping station near the end of the hot strip mill supplies main service and high pressure water for the spray system. Equipment includes three 20,000 gal. a min. motor driven pumps for the service water and one 1000 gal. a min. 1000 lb. pressure pump for descaling use. About 800 gal. a min. is used for descaling purposes and 400,000,000 gal. a month or 10,000 gal. a min. for service use.

Though the nature of finishing operations will cause severe fluctuations, an average of 300 men a turn will be employed by the new mill.



Industrial Tractors and Tractor Trains

o o o

By FRANCIS JURASCHEK
Consulting Editor, The Iron Age

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CHAPTER 31 of a Series on the Methods and Equipment of Modern Materials Handling.

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ONE of the greatest forward steps in the art of handling materials mechanically was taken when power was added to industrial wheeled vehicles. The mere substitution of the gasoline engine or the storage battery and electric motor drive for human muscle has cut many millions of dollars from the costs of handling operations. The effects of these savings on both the cost of production and the costs of distribution have been sufficient in total volume to materially affect the actual delivered prices on consumers' goods of practically every type. The influence has been felt in hundreds of industries; we pay less today for food stuffs, for clothing, for building materials, and for most of the necessities and luxuries of life because of the more economical methods of handling brought about by the widespread use of the powered industrial wheeled vehicle in place of the man-with-the-hand-truck.

Now, the man-with-the-hand-truck still has a place in the cosmic scheme; but that place is *not* in volume handling. An economic limit may be quickly found in any handling operation, beyond which muscle costs more than machines. That limit varies, according to the handling operation, and particularly according to the extent of the repetition of the same or similar operations in the handling cycle. To move five ton-miles per month, coolie labor is cheapest; to move fifty ton-miles per day coolie labor is expensive at *any* wage rate. Only analysis of the actual costs for a particular problem will reveal the economic dividing line . . . but analysis will invariably reveal it. Above that line manual handling methods waste good money.

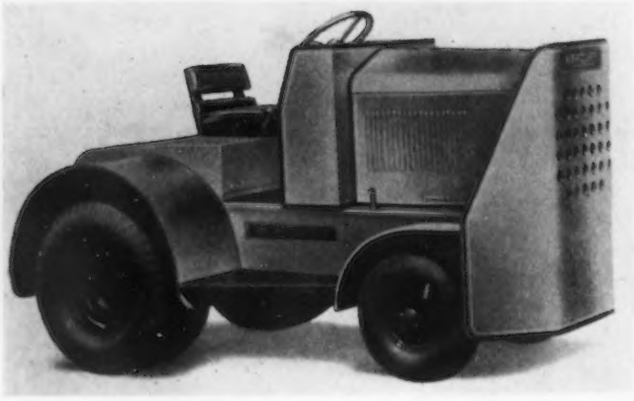
Case study methods of the determination of handling costs prove these statements conclusively. An approach to the case study method of analyzing the costs of industrial truck operation has already been made in this series of discussions. Later articles will deal even more definitely with actual problems. Here, in order to make those studies clear, it will be of interest to examine in some detail a special method of industrial truck operation; the method in which the equipment used is the industrial tractor and trailer train.

The addition of power to the industrial wheeled vehicle has resulted in two lines of development; 1—the tractor, or pulling vehicle, and the truck, or pushing vehicle. The development of the truck has been treated at some length in this series because of the news elements involved. Almost every days sees a new type of truck built, designed to do more completely, more rapidly, and more economically, some special handling job. As a self-contained unit the industrial truck has branched out into many lines of design; it picks up its load on forks, on rams, in scoops, or by means of cranes; it carries its load wherever required, and then deposits its load automatically, or semi-automatically. The tractor, however, has remained in large part purely and simply a hauling unit. It has been and still is primarily a locomotive, not a load-carrier in itself.

Yet as a locomotive designed to pull loads carried by other wheeled vehicles, the tractor performs an exceedingly useful and economical function in modern materials handling work. Its importance should not be underestimated by comparison with its more versatile brother, the industrial truck.

The Tractor's Function

The industrial tractor does not compete with the industrial truck, nor does the truck compete with the tractor. Their respective spheres of activity are separate and clean-cut. They are not interchangeable, and when, as sometimes happens, they are used interchangeably, they are both economic misfits. The truck is a unit-load burden carrier, more or less completely self-contained as to its characteristics of picking up and depositing its load as well as carrying it; the tractor is a multiple-load burden hauler, not suited for load picking-up and laying-down operations. The truck, in its modern forms, is essentially a complete materials handling system within itself; the tractor is essentially a locomotive only, designed to pull other vehicles



ABOVE

FIG. 1—Mercury Mfg. Co. gas powered industrial tractor especially adapted for terminal handling service.

BELOW

FIG. 2—Mercury storage battery industrial tractor of all steel welded boiler plate construction, adapted for indoor use.

loaded with burdens far greater in size, shape and weight than itself.

In brief, the tractor is the motive force for a train of trailers; nothing more nor less. Almost invariably any other job an industrial tractor may be assigned to do may be better handled by a truck.

As a locomotive, then, just as with the giant locomotives that pull the freight and passenger trains of a railroad system, every item of design is pointed towards one end; that of developing the maximum possible drawbar pull. The shape of the tractor, the disposition of the weight on the wheels, the steering, the controls, and of course, the power developed, have that one aim in view. Whenever any industrial tractor design departs from that aim, and adds mechanism to lift loads or to carry them on its own chassis, it becomes no longer a tractor, but a mongrel half-breed; usurping the functions of the truck and generally not succeeding any too well.

There are three types of tractor motive power in extensive use; the internal combustion engine, generally gasoline, but frequently diesel, semi-diesel, or electric spark-ignition oil; the gasoline engine-electric generator-motor unit; and the storage battery-electric motor unit. As to physical shape, the tractor may be of the four-wheel type, or of the three-wheel type. Tractors designed for yard usage only may have steel-tired wheels or crawler treads; tractors designed for use inside the plant are always equipped with solid rubber or pneumatic rubber tires, or with wood wheels. Trailers generally have caster-type wheels, generally of all metal construction, but frequently having tires of rubber, or wooden wheels.

The Tractor-Train Principle

"The first industrial trucks to go into service during the early part of this century," says George E. Stringfellow in Modern Materials Handling, "were purely haulage units which were loaded and unloaded by hand. They spent only an hour or two out of an eight-hour shift actually in motion, and the other six or seven hours being loaded and unloaded." In a day when coolie labor was cheap, even this use of industrial trucks proved economical. But as labor wages began to soar, the industrial truck idea had to develop. Two sharply stressed lines of functional operation appeared; in the one the truck was designed to pick up and deposit its load as well as to carry it, in the other the problem of loading was approached through the use of auxiliary equipment, such as trailers, skids, pallets, cranes, scoops, forks and rams. It is in this latter approach that we find the development of the tractor-trailer system.

In this system, the tractor, not being considered as a load-carryier at all, is completely freed from the losses of time incident to loading and unloading. While it is hauling trains of loaded trailers, or spotting empty trailers at loading points, other trailers are being loaded or unloaded in preparation for hauling.

It follows, therefore, that the primary usefulness of the tractor-trailer system is to be found in volume handling, under such conditions as make possible the movements of goods intermittently through similar cycles of fairly considerable length of haul. Three typical examples will make this point clear:

1—Railroad l. c. l. freight handling at a terminal warehouse. Here the problem is essentially one of transferring many different packages of all sorts of sizes, shapes and weights, from various temporary storage piles in the warehouse, to railroad cars for shipment; or, conversely, to unload railroad cars and deliver the goods to various points in the warehouse or to other means of transportation for local deliveries. Either way, the tractor-trailer system delivers empty trailers to many loading points and picks up loaded trailers from these points, consolidating them all into single trains and making deliveries at all the points to be covered, *on regular, scheduled trips.*

2—Miscellaneous cargo handling at a marine terminal. Here the problem is somewhat similar to the above, in that packages of all sorts of sizes, shapes and weights are to be transferred from the holds of a ship to the dock or terminal warehouse, or from the dock or warehouse to the ship's holds. Either way, providing only that the cargo need not be lifted vertically

out of the holds, the tractor-trailer system first delivers empty trailers to the loading points, and then picks them up in a consolidated train for delivery at various other points, *on regular, scheduled trips.*

3—Production handling in the industrial plant. Again the problem is similar in fundamental characteristics. Raw materials or parts are to be delivered from storage to machining or processing equipment, or from one process to another in sequence, and later taken from such equipment to storage or to shipping rooms. Here the tractor-trailer system usually handles loaded trailers all the time, taking materials to machines, and after the work is done on such materials, removing them to other points in the production cycle. But the principal idea to consider in such handling is, that it should all be done *on regular, scheduled trips.*

TYPICAL PLANT TRACTOR-TRAIN TIME TABLE

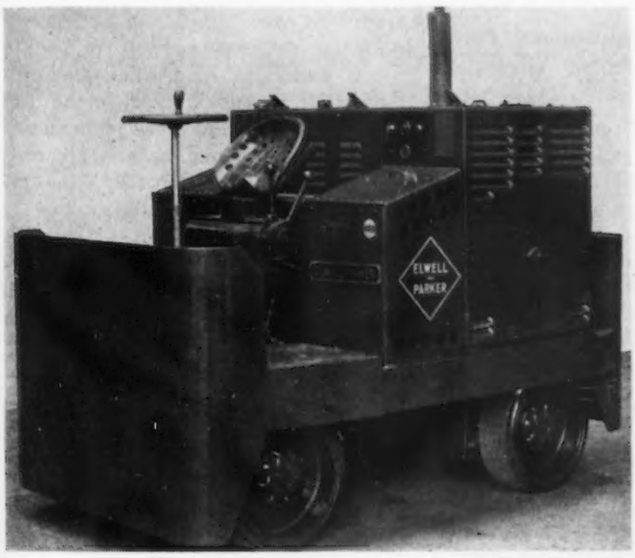
Department	1st Trip	2nd Trip	3rd Trip	4th Trip	5th Trip	6th Trip	7th Trip	8th Trip
Storeroom 3	7:30		9:30			12:50		2:50
Carpenter shop	7:35		9:35			12:55		2:55
Tin shop	7:40		9:40			1:00		3:00
Paint shop	7:45		9:45			1:05		3:05
Storeroom 2	7:50	8:40	9:50	10:40	12:00	1:10	2:00	3:10
Motor room	7:55	8:45	9:55	10:45	12:05	1:15	2:05	3:15
Armature room	8:00	8:50	10:00	10:50	12:10	1:20	2:10	3:20
Brass foundry	8:05	8:55	10:05	10:55	12:15	1:25	2:15	3:25
Steel shop	8:10	9:00	10:10	11:00	12:20	1:30	2:20	3:30
Forge shop	8:15	9:05	10:15	11:05	12:25	1:35	2:25	3:35
Machine shop	8:20	9:10	10:20	11:10	12:30	1:40	2:30	3:40
Storeroom 1	8:25	9:15	10:25	11:15	12:35	1:45	2:35	3:45
Punch shop	8:30	9:20	10:30	11:20	12:40	1:50	2:40	3:50
Yard	8:35	9:25	10:35	11:25	12:45	1:55	2:45	3:55

the move, over regular routes, at predetermined time intervals.

An example of such a time table, worked out for an industrial plant and involving the use of one tractor and some thirty trailers, shows how such a schedule, once established, can serve as a stimulus to orderly and consistent timing of work in each department, as well as an incentive to reduce handling costs to a minimum. This schedule was based on a careful study of the handling needs of the various departments involved.

Such schedules are, of course, much easier to maintain in the industrial plant than at freight terminals, either marine or railroad, for at terminals handling movements are subject to the vicissitudes of varying cargo deliveries and cargo destinations. Nevertheless, even where as in such cases the tractor-train trips may vary greatly from day to day, the principle of operation still holds, and that tractor will pay best which is used consistently on planned trips over definite routines.

The story has been told frequently of a river navigation line operating four boats between a metropolis and two cities up-stream. At the metropolitan terminal some 1300 tons of miscellaneous cargo are handled to and from two boats every day with



AT LEFT

FIG. 3—Heavy duty Elwell-Parker tractor as built for a steel mill, equipped with Ready-Power gasoline electric unit drive.

o o o

BELOW

FIG. 4—This Baker-Raulang storage battery tractor develops extremely high tractive effort, to handle special heavily loaded trailers in a steel mill.

The Time Table of Trips

Thus we come to a consideration of that factor which is of outstanding economic importance in the tractor-trailer system of handling; the time table. The system truly earns its board and keep, and pays dividends on the investment required, when the handling operations may be so arranged that the tractor may be kept constantly in motion on regular, scheduled trips, spaced at fairly definite time intervals. Here the railroad train analogy becomes complete. Just as the freight train runs on a definite schedule each day from point to point, making up parts of its load and delivering parts of it at various points along the line, just so the "trackless train" of industry only operates economically when it keeps eternally on

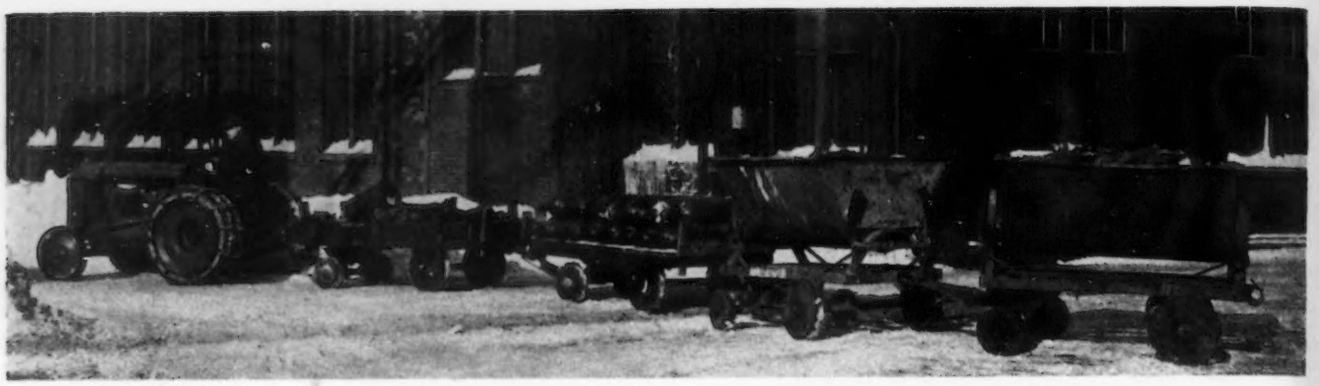


FIG. 5—Metzgar "end-wood" wooden trailer wheels have been found to possess many operating advantages in railroad car repair shop work.

four tractors; at one upstream city about 1000 tons are handled with two tractors, and at the other city about 300 tons are handled with one tractor, from one boat daily per city. About 250 trailers are used, many of them making the trips between cities on the boats, carrying their loads. only light stuff, such as can be easily handled by one man, is taken off the trailers on the boats. At each terminal tractors haul loaded and empty trailers on and off the boats on regular round trips, keeping on the move constantly, and handling the freight economically.

This handling problem is, of course, quite different from the problems of loading and unloading ocean-going vessels. But here the tractor-trailer system is worked successfully also. As a matter of fact marine terminals are today one of the largest fields in which tractor-trailer trains operate. On unloading operations the tractor hauls a string of empty trailers into the ship's hold, then returns to the various loading points to pick up the loaded trailers, while other empties are being loaded. For loading operations the procedure is reversed.

At railroad terminals both freight and express shipments are handled expeditiously by tractor-trailer trains; freight being handled generally on low-wheeled trailers similar to the industrial type, and express matter on the common high-wheeled baggage trucks, which provide a platform at car floor level.

Equipment Illustrated

Fig. 1 shows a Mercury Mfg. Co. four wheel, gas-powered tractor 8 ft. long, 4 ft. wide, and only 62 in. high overall. The power plant is a Ford model BB industrial four cylinder engine. The total weight of the tractor, less the operator, is 3450 lb., and it has a maximum draw-bar pull of 3000 lb. A smaller edition of the Mercury gas tractor, known as the "Banty" model, is less than 74 in. long, 40 in. wide and 56 in. high, weighs but 2700 lb. and has a maximum sustained draw-bar pull in low gear of 2300 lb. at over 2 m.p.h.

Fig. 2 shows a Mercury storage battery electric drive general purpose tractor that is particularly adapted for indoor operation in situations where the gas engine drive might prove objectionable. This tractor is distinguished by the fact that the frame construction is of all welded steel boiler plate.

Fig. 3 illustrates an Elwell-Parker heavy duty four wheel drive, four wheel steer tractor as built for a large steel concern. The motive power is a giant Ready-Power gasoline-electric unit, capable of producing in this tractor a maximum draw-bar pull of 3500 lb. and a speed of up to 3½ m.p.h. under full load. The travel control is of the drum type, with three speeds forward and three reverse, and includes a dynamic braking feature. The brake is set, normally, and the tractor cannot be operated unless the operator is seated.

In Fig. 4 there is shown a Baker-Raulang four wheel drive tractor with a separate motor mounted on each axle. Especially designed for heavy duty steel mill operation, this tractor develops extremely high tractive effort for pushing or pulling transfer cars, sheet trailers, etc. Because of the nature of the loads handled, this tractor is seldom called upon to haul more than two trailers at any one time, but these trailers loaded are really *loaded.*

Fig. 5 shows a gas engine tractor hauling a string of platform and dump trailers around a railroad repair shop yard. Notice that the trailers are equipped with the Metzgar "end-wood" wooden wheels. Trailer wheels of this type have demonstrated undoubted advantages as to wearing qualities, long life and absence of damage to floors; and are being used by various railroads for shop and terminal haulage.

Fig. 6 gives an excellent idea of the operation of a typical Mercury "trackless train" composed of Mercury tractor and Mercury trailers. These trailers are equipped with automatic couplers, and they "trail" or follow the lead of the tractor perfectly, whether the path is straight or full of complicated curves.

FIG. 6—A typical Mercury "trackless train" in operation in an industrial plant. These trailers have automatic couplers and "trail" perfectly in the train.

Exports (In Gross Tons)

	July		Seven Months Ended July	
	1938	1937	1938	1937
Pig iron	10,371	168,538	226,151	474,389
Ferromanganese and spiegeleisen	4	169	224	1,505
Other ferroalloys	51	112	706	1,281
Scrap, iron and steel	125,399	420,097	1,910,771	2,554,862
Scrap, tin plate	688	3,450	9,519	19,615
Waste-waste tin plate	336	1,756	4,446	22,926
Pig iron, ferroalloys and scrap	*136,849*	*594,122*	*2,151,817*	*3,074,578*
Ingots, blooms, billets, sheet bars	17,779	48,751	136,197	108,171
Ingots, etc., alloy steel, incl. stainless	83	321	4,982	4,182
Skelp	1,023	11,568	7,641	51,501
Wire rods	1,312	3,775	18,279	28,139
Semi-finished steel	*20,197*	*64,415*	*167,099*	*191,993*
Bars, plain and reinforcing	9,088	18,446	87,886	76,297
Bars, alloy steel	295	491	2,537	3,928
Bars, stainless steel	14	13	225	162
Iron bars	36	432	894	1,710
Plates, plain and fabricated	17,306	50,280	135,683	189,547
Plates, alloy steel	82	122	1,974	2,302
Plates, stainless	2	4	136	20
Sheets, galvanized steel	7,821	6,915	41,252	41,004
Sheets, galvanized iron	272	273	2,272	2,993
Sheets, black, plain steel	13,934	30,822	112,959	151,771
Sheets, alloy steel	8	1,234	2,297	3,039
Sheets, stainless	110	88	1,300	406
Sheets, black iron	678	557	4,100	6,152
Hoops, bands, strips, plain steel	2,602	8,260	32,698	68,065
Hoops, bands, strip steel, alloy	30	86	188	854
Hoops, bands, strip steel, stainless	80	65	380	346
Tin plate and taggers' tin	12,802	34,439	102,029	184,097
Terne plate (including long ternes)	360	193	2,917	3,258
Structural shapes, plain material	6,173	22,379	55,461	82,088
Structural material, fabricated	2,153	4,194	22,251	21,379
Sheet piling	83	144	1,952	2,331
Tanks, steel	2,466	3,664	19,822	18,343
Steel rails	1,960	6,800	40,629	61,097
Rail fastenings, switches, spikes, etc.	1,042	2,065	6,653	10,373
Boiler tubes	598	1,226	9,454	7,552
Casing and oil line pipe	3,995	9,743	46,847	56,039
Pipe, black and galv. welded steel	2,052	5,639	13,038	25,728
Pipe, black and galv., welded iron	291	354	2,762	4,318
Plain and galvanized wire	5,667	7,575	26,795	35,928
Barbed wire and woven wire products	4,147	3,008	17,063	24,671
Wire rope and other products	812	1,438	6,191	9,319
Nails and tacks	2,866	2,102	13,376	15,482
Bolts, nuts, rivets and washers except track	643	969	4,779	5,909
Other finished steel	203	131	2,237	1,729
Rolled and finished steel	*100,671*	*224,151*	*821,037*	*1,119,237*
Cast iron pipe and fittings	2,806	1,966	14,526	20,013
Malleable iron screwed fittings	254	624	1,790	3,119
Carwheels and axles	1,889	1,094	14,127	9,217
Castings, iron and steel	485	1,369	3,723	7,923
Castings, alloy steel, incl. stainless	78	149	514	981
Forgings plain	461	1,510	4,499	4,590
Forgings, alloy steel, incl. stainless	9	78	246	502
Castings and forgings	*5,982*	*6,790*	*39,425*	*46,345*
Total	263,699	889,478	3,179,378	4,432,153

Imports (In Gross Tons)

	July		Seven Months Ended July	
	1938	1937	1938	1937
Pig iron	936	8,310	21,301	68,175
Sponge iron	5	.....	323	1,228
Ferromanganese[1]	1,309	2,598	6,378	19,850
Spiegeleisen	203	3,440	5,027	12,452
Ferrochrome[2]	28	17	99	233
Ferrosilicon[3]	37	219	315	1,504
Other ferro-alloys[4]	.....	.....	1	52
Scrap	634	5,824	1,804	38,581
Pig iron, ferroalloys and scrap	*3,152*	*20,408*	*35,248*	*142,075*
Steel ingots, blooms, etc.	3	.....	7	124
Billets, whether solid or hollow	1	150	378	1,239
Wire rods	278	1,045	2,798	9,364
Semi-finished steel	*282*	*1,195*	*3,183*	*10,727*
Concrete reinforcement bars	89	95	662	3,545
Hollow steel bars	47	146	476	1,521
Merchant steel bars	884	4,823	11,382	33,382
Iron slabs	.....	.....	.....	1
Iron bars	24	71	335	1,230
Boiler and other plate	10	....	120	199
Sheets, skelp, and saw plate	110	350	5,285	8,205
Die blocks or blanks, etc.	2	4	66	77
Tin plate	25	.....	55	152
Structural shapes	2,507	7,486	24,454	57,865
Sheet piling	.....	.....	.....	1,762
Rails and track material	231	1,032	1,983	6,403
Welded pipe	355	343	2,791	6,002
Other pipe	887	1,578	13,651	16,124
Cotton ties	3,085	105	3,331	454
Other hoops and bands	1,040	3,584	10,729	19,211
Barbed wire	692	1,767	8,518	8,857
Round iron and steel wire	107	239	684	2,985
Telegraph and telephone wire	.....	2	5	12
Flat wire and steel strips	168	281	1,518	2,136
Wire rope and strand	99	404	1,218	2,261
Other wire	97	380	919	2,761
Nails, tacks, and staples	626	1,827	4,097	11,348
Bolts, nuts, and rivets	12	94	93	358
Horse and mule shoes	33	26	248	183
Rolled and finished steel	*11,130*	*24,637*	*92,620*	*187,034*
Malleable iron pipe fittings	5	12	42	254
Cast iron pipe and fittings	22	272	898	1,777
Castings and forgings	137	488	1,722	2,759
Total	14,728	47,012	133,713	344,626

[1] Manganese content. [2] Chrome content. [3] Silicon content. [4] Alloy content.

Iron-Steel Imports and Exports Drop Slightly

JULY exports of iron and steel products (excluding scrap) amounted to 137,276 tons, valued at $9,832,897, in comparison with 149,955 tons, valued at $10,799,161 in June, according to a preliminary report released by the Metals and Minerals Division of the Department of Commerce. From the standpoint of tonnage, steel ingot shipments in July ranked first with 17,862 tons, going mostly to Japan (13,518 tons). Next ranking was plate, with a total of 17,390 tons. Black steel sheet shipments amounted to 14,730 tons and were taken principally by Canada (2854 tons), the Soviet Union (2742 tons), and the United Kingdom (1941 tons).

Imports of iron and steel products (excluding scrap) during July amounted to 14,094 tons, valued at $955,215, in comparison with 15,573 tons, valued at $1,035,536 in June. For the second time this year the import trade was valued at less than a million dollars. From the standpoint of tonnage, hoops and bands were outstanding in the month's trade, totaling 4125 tons, the principal suppliers being Germany (2947 tons) and Belgium (1139 tons).

United States Imports of Pig Iron by Countries of Origin

(In Gross Tons)

	July		Seven Months Ended July	
	1938	1937	1938	1937
United Kingdom	....	....	42	100
British India	499	5,269	10,658	39,953
Germany	....	....	....	510
Netherlands	250	2,377	5,712	17,442
Canada	187	664	1,351	4,514
France	....	....	....	....
Belgium	....	....	....	....
Norway	....	....	3,538	475
Sweden	....	....	....	600
Russia	....	....	....	4,581
All others	....	....	....	....
Total	936	8,310	21,301	68,175

July Imports of Iron and Manganese Ores

(In Gross Tons)

	Iron Ore		Manganese Concentrates, 35 Per Cent or Over	
	1938	1937	1938	1937
Canada	120	30	....	....
Cuba	....	38,500	2,890	6,102
Chile	144,050	143,350	....	....
Spain	....	....	....	....
Norway	....	....	....	....
Sweden	53,677	15,305	....	....
French Africa	....	....	....	....
Russia	....	....	7,720	29,619
India	....	....	2,145	3,567
Brazil	2,800	....	3,545	1,835
Gold Coast	....	....	5,048	16,296
Other countries	5,023	33,864	1	13
Total	205,760	231,049	21,349	57,432

THIS WEEK ON THE ASSEMBLY LINE

By W. F. SHERMAN
Detroit Editor

. . . Buick buying 13,000 tons of steel; brings commitments up to 35,000 tons for 90 days' production . . . Output of 1939 models speeded; public announcements to be made soon . . . Ford gives purchase orders for hydraulic brake parts.

DETROIT.—Today, Sept. 1, really is New Year's Day for the automobile industry. It marks the beginning of actual large scale production for a considerable part of the industry and brings some companies within very few days of public announcement of their products.

The degree of enthusiasm for the new models and the prospects for the new year are indicated by a statement released Monday by Harlow H. Curtice, president of Buick. His company's 1939 manufacturing program has been advanced 10 days in view of improved business conditions and indications of a rising automobile market this fall, Mr. Curtice said. He announced that steel orders for 13,000 tons of materials were currently being sent to the producers, bringing Buick commitments up to 35,000 tons of sheet, strip and bar stock to meet production requirements for the next 90 days on new models.

Curtice said that the decision to move rapidly into production of next year's models was influenced by the midsummer upturn in business as evidenced by the strength in security markets and other indices, and particularly by the firmness of dealers' sales in the past two months, as a result of which field inventories are at the lowest point in two years.

MANUFACTURING costs of automobiles are held down by efficient arrangement or layout of machinery in the plant. Every year before production begins on new cars new tools and machinery are rearranged to comply with changes in design to obtain a higher degree of efficiency, if possible. Here is a group of production experts working over the layout table of the axle plant at Pontiac Motors. Paper cutouts, drawn exactly to scale, are made for each machine. There is an infinite amount of detail required to obtain the best arrangement so that every part can be made with the least amount of materials handling. In the picture, left to right, are Carl Ostling, supervisor of standards; Bert C. Conway, master mechanic, and Kenneth Sprung, in charge of plant layout.

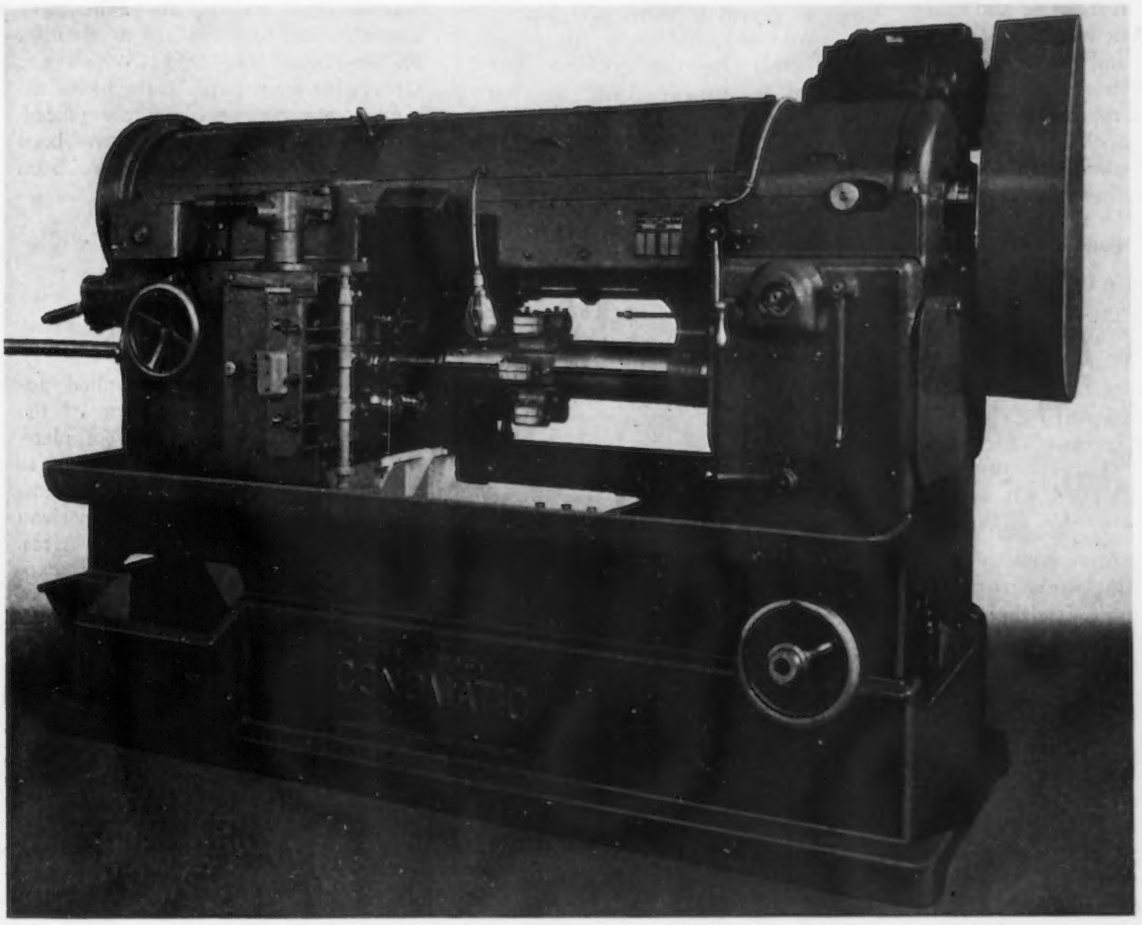
Buick Schedules 55,000 Cars

Buick plans call for the output of more than 55,000 cars by the end of November. September operations will be about equal to June, when about 14,000 cars were built, and the fourth quarter will be in higher levels, probably about 20,000 a month. Production last week was about 500 units.

Plymouth, which started its production in the middle of August, about the same time as Buick, produced nearly 1800 cars last week. The large storage yard alongside the plant is filled with the new cars and trainloads of them already have been shipped to distant points. A second assembly line was put into operation late last week and results should show up this week in much larger production. The plant has a capacity of 2000 cars a day without difficulty and has, on occasions when three shifts were working, produced nearly 3000 units a day. Dealer previews in 53 cities from coast to coast were held Tuesday.

Sale of both new model Plymouths and Buicks by the middle of September is freely predicted in Detroit. In fact, Buick's gigantic salesroom on the first floor of the General Motors Building has its windows all whited

Announcing



THE NEW 6-SPINDLE CONOMATIC

Many improvements in performance and operation have been incorporated in the new line of Six-Spindle CONOMATICS. One of the most outstanding improvements is the design of attachment driving parts. Open end gearing is now available, and the time required for placing any attachment in operation is reduced to a minimum. The high and low speed cam action may be disconnected by the operator when checking tools. Power feed engagement is instantaneous and operates by a touch of the lever and can be controlled from either side of the machine. Power feed countershaft provides a very wide range of feeds and a slow speed for tooling that can be instantly moved to high or production feed. Power feed reverse makes the hand wheel unnecessary and decreases tool-up time. Two formers and a cut-off tool are held in the front slide while three forming tools are operated in the rear slide. Six end working positions are provided by the cylindrical turret, and two independent end positions are supplied by the semi-turret. This also operates the stock stop arm, and, by its action, all rebound of the stock is overcome. Two more independent end stations are provided by the auxiliary spindle attachments. High speed drilling, reaming, threading, and tapping are all provided for, as well as roll-turning, knee-turning, roll-supporting and forming. Universal auxiliary cross slides are easily attached to the top-bed for operation in the 5th and 6th positions. The indexing mechanism has been refined and reduction, of wear and noise at all points throughout the machine, has been carefully planned.

Complete specifications will be sent on request.

Here is a typical 6-Spindle Conomatic job—a cold rolled steel speedometer drive pinion blank. It is 3 37/64 inches long, 27/32 inches in diameter, drilled on one end 1″ deep, 5/32″ diameter. The time—10 seconds per piece!

CONE AUTOMATIC MACHINE CO., INC., Windsor, Vt., U.S.A.

to shield the sales floor from the public gaze while plans are made for unveiling in the near future.

Chevrolet is going ahead rapidly with its preparations to produce new models. Several hundred box cars are being prepared for transporting the new front suspension units, which are manufactured in the gear and axle plant, Detroit, and delivered ready for assembly at Flint and the branch assembly plants. These box cars are being put in use as rapidly as they are equipped and the work is to be completed by Sept. 15 when Chevrolet expects to resume final assembly.

Output Off Temporarily

Total production in the industry last week was 18,700 compared with 23,940 in the previous week and 83,310 a year ago, according to Ward's Automotive Reports. The slump from the previous week was occasioned by Chevrolet's shutdown to prepare for new model production. Largest producer during the week was Ford, whose output was 14,000 of the 1938 vintage.

The August crop of rumors has just been harvested, with two more small cars as the fruits. Studebaker at South Bend, hearsay has it, has a new four-cylinder car in the making. And at the Graham plant in Detroit, engineers are reported to be developing a four-cylinder engine after having experimented with a four-cylinder Continental engine for some time. Widespread interest of experimental departments in light cars has led to a lot of guessing as to the possible future cars of the automobile industry. If some of the independents, or the large producers which have developed light cars, should see a real market for them, they would be introduced. There is no doubt about that.

Hupp Gets New Financing

With abundant evidence of an upswing in automobile business, the independents, particularly those which have suffered financial setbacks, are attempting to reestablish themselves. It was announced a week ago that the Hupmobile Motor Car Co. had a new president, S. L. Davis. Hardly had he taken office when he stated that nearly two million dollars had been assured to finance the company's program for 1939. A stockholders' meeting will be held Sept. 14 at Richmond, Va., to seek authorization for an additional million shares of stock, thus putting the company in a position to raise $3,000,000 any time it might be required. The company already has bought about $1,000,000 worth of tools, dies and equipment from an unnamed company, generally believed to be Cord. Its 1939 program includes the introduction of two new models in the low priced field.

Graham is holding a meeting of distributers and important dealers this week to reveal to them new financial plans and to show them the models which will be sold during 1939. Graham is understood to have strengthened its finances recently.

Reo Motor Car Co. at Lansing, moving to reduce its overhead, has initiated a program of the "strictest kind" of economy. Rowland Campbell, who has become acting president, has ordered the destruction of a wing of the factory which has been unused since the company abandoned the passenger car field and plans to rent the administration building space which isn't needed by Reo at present.

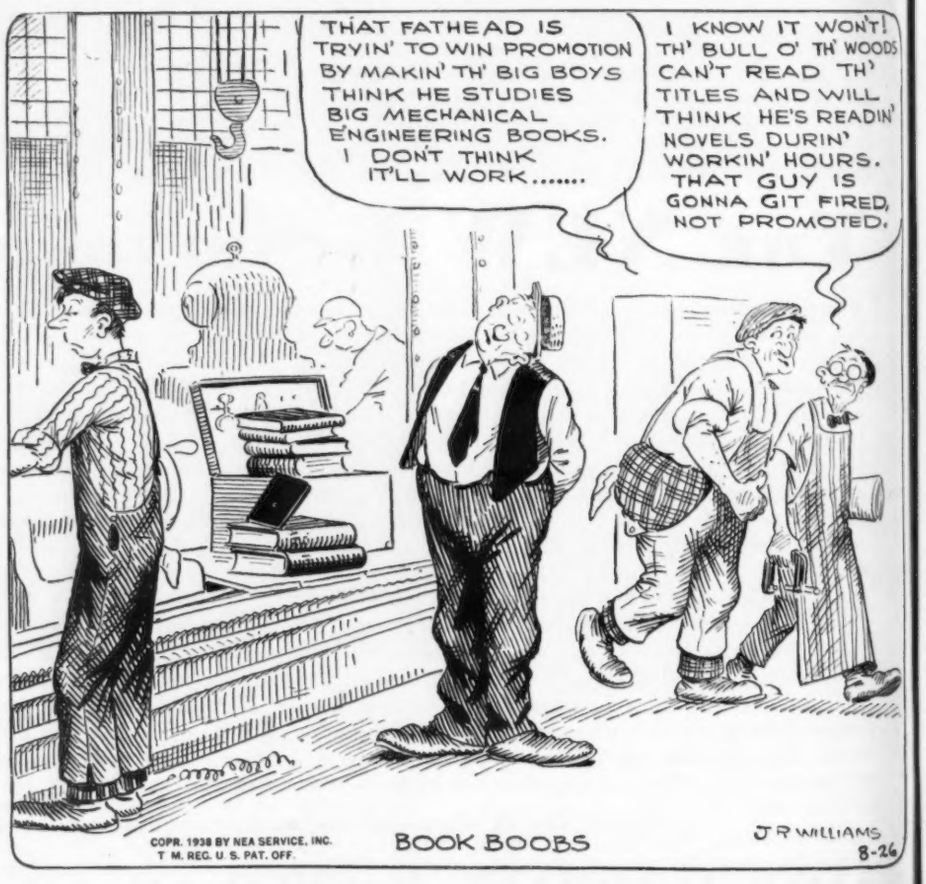
Ford Gives Go-Ahead On Hydraulic Brakes

Ford's plans to adopt hydraulic brakes on 1939 models became definite last week when instructions were given to several suppliers to make preparations to produce this type of brake. It is understood that the hydraulic cylinders will be manufactured by Wagner Electric Co., St. Louis; Bendix Aviation Corp., South Bend, and Kelsey-Hayes Wheel Co., Detroit. Various other major parts of the brake assembly will be furnished by Bendix, Kelsey-Hayes and Budd Wheel Co. Orders for some parts of the brake assembly are not yet definitely placed. Apparently no contracts have been signed, but the suppliers have been given purchase orders.

Quarter of Argentine Steel Imports from U. S.

THE United States supplied approximately 25 per cent of the Argentine July imports of tin plate, sheets, pipe, and wire, according to a report to the Department of Commerce from the offices of the American Commercial Attache at Buenos Aires.

THE BULL OF THE WOODS — BY J. R. WILLIAMS


THAT FATHEAD IS TRYIN' TO WIN PROMOTION BY MAKIN' TH' BIG BOYS THINK HE STUDIES BIG MECHANICAL ENGINEERING BOOKS. I DON'T THINK IT'LL WORK.....
I KNOW IT WON'T! TH' BULL O' TH' WOODS CAN'T READ TH' TITLES AND WILL THINK HE'S READIN' NOVELS DURIN' WORKIN' HOURS. THAT GUY IS GONNA GIT FIRED, NOT PROMOTED.
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BOOK BOOBS
J R WILLIAMS 8-26

Steel Executives Selected to Entertain British Steel Men

LEADERS of the steel industry will serve on local committees which will welcome to the principal steel producing cities in October a group of nearly 300 prominent British industrialists, engineers and metallurgists.

The visiting group, consisting of members of the Iron and Steel Institute and the Institute of Metals, both of Great Britain, is coming here at the joint invitation of the American Iron and Steel Institute and the American Institute of Mining and Metallurgical Engineers. The visitors will make an extensive tour of iron and steel plants and non-ferrous metal works, after holding a joint meeting in New York with the two American institutes on Oct. 3 and 4.

The chairman of the committee in charge of arrangements in New York City is W. A. Irvin, vice-chairman of United States Steel Corp. Other members of this committee are E. R. Stettinius and B. F. Fairless, respectively chairman and president of that corporation; T. M. Girdler, chairman of Republic Steel Corp. and president of the American Iron and Steel Institute; C. M. Schwab and E. G. Grace, respectively chairman and president of Bethlehem Steel Corp.; F. B. Hufnagel, chairman of Crucible Steel Co. of America; Arthur Roeder, president of Colorado Fuel & Iron Corp.; E. T. Weir, chairman of National Steel Corp., and C. R. Hook, president of American Rolling Mill Co.

Itinerary of Tour

After leaving New York, the British group will go to Washington and Baltimore.

In Pittsburgh, which will be visited Oct. 10, 11 and 12, the welcoming committee will be headed by B. F. Fairless and will include W. F. Detwiler, F. R. Frost, B. F. Harris, W. W. Holloway, W. F. Ingals, H. E. Lewis, T. E. Millsop, E. L. Parker, J. L. Perry, L. F. Rains, and H. A. Roemer. A banquet for the visitors will be held there at the William Penn Hotel Oct. 11.

Youngstown will be visited Oct. 13 and Cleveland Oct. 14 and 15. The committee for both cities will be headed by H. G. Dalton, chairman of the Youngstown Sheet & Tube Co., and will include T. M. Girdler, C. F. Hood, Elton Hoyt, II, G. M. Humphrey, E. J. Kulas, Frank Purnell, H. H. Timken and R. J. Wysor.

Detroit will be visited Oct. 16, 17 and 18. The committee in that city will be headed by G. R. Fink, president of Great Lakes Steel Corp., and will include A. J. Bopp, C. P. Craine, D. B. McLouth, H. M. Naugle and W. C. Schrage. On Oct. 18, the visiting group will attend a banquet given by the metals division of the American Institute of Mining and Metallurgical Engineers at the Book-Cadillac Hotel in Detroit.

One group of the visitors, on its way back to New York, will inspect industrial plants in Buffalo on Oct. 19. The main group will be in Chicago from Oct. 20 to 25. L. E. Block, chairman of the Inland Steel Co., will be chairman of the committee in Chicago. Other members of the committee are P. D. Block, C. D. Caldwell, A. T. Clarage, W. E. Hadley, W. I. Howland, Jr., G. C. Kimball, Hayward Niedringhaus, R. H. Norton, G. E. Rose, and E. L. Ryerson, Jr. A banquet will be held here at the Palmer House on Oct. 20.

The group will return to New York Oct. 25.

Annealing Wire in a Radiant Tube Furnace

(CONCLUDED FROM PAGE 28)

the controls. The total time required for disconnecting the gas, power and thermocouple connections, transferring the cover to the next position, connecting and lighting up, has averaged less than five minutes.

The equipment anneals 16 in. and 22 in. inside diameter coils so that the charges vary from 7000 to 13,000 lb. net. Due to the fact that very little weight is heated in the form of inner cover, spindles and bases, the net production per day runs constant. Over a period of 400 heats, the production has varied from between 36,000 and 42,000 lb. per 24-hr. day.

The wire is heated from cold to 1300 deg. F. and soaked at that temperature for one hour; the cover is then transferred to another loaded base and the wire cools under the inner cover with the recirculating fan running. Total cycles, including the soak, vary from 4½ to 7½ hr., depending upon the amount of wire charged. At the end of the soaking period the four couples within the wire (as stated before) are within plus or minus 15 deg. of the controlled setting. One man handles the entire installation, together with the wire, into and out of the department.

When the installation was started, very thorough physical tests were made in which coils from top, center and bottom of each stack were cut into 5-lb. bundles and tests taken from each bundle. Although many open hearth heats were represented the variation in tensile strength was within 3000 lb. total. During normal operation, routine tests are made from top, bottom and center of each stack.

The atmosphere surrounding the work is merely air entrapped in the inner cover and recirculated. The equipment is supplied with all the necessary piping for bright annealing, however, although no DX unit has been installed up to the present time. A very light oxide is formed by the oxygen entrapped under the inner cover, but the surface condition of the wire itself is better than had been expected without an inert atmosphere.

Steel In Use In 1937 Reaches New Peak, 1,050,000,000 Tons

TONNAGE of steel in use in the United States climbed to a new high level during 1937, amounting to 1,050,000,000 gross tons at the end of the year, as against 1,020,000,000 tons a year before, estimates by the American Iron and Steel Institute indicate.

The increase during 1937 marked the fifth consecutive year of increase in the amount of steel in use, and brought the total 25 per cent above the 1929 figure of 840,000,000 gross tons.

Included in the reported tonnage of steel in use are estimates of the amount of steel in buildings, bridges, dams, railroad equipment and other capital goods, as well as the steel in automobiles, refrigerators, cutlery and other consumers' goods.

The amount of steel in use in 1937 represents an average of 18,100 lb. for every person in the country, or 300 lb. more per capita than in 1936. In 1929 approximately 15,400 lb. of steel per capita was in use.

Since 1900 the tonnage of steel in use in the country has increased nearly 16 times as fast as population. Approximately 88,000,000 tons of steel was in use at the beginning of the century, equivalent to 2600 lb. per capita.

THIS WEEK IN WASHINGTON

. . . Public Contracts Board expects to announce its recommendations on minimum steel wage rates within two weeks . . . Steel industry in front line of New Deal's monopoly investigation . . . Donald Wakefield Smith reappointed to NLRB.

o o o

By L. W. MOFFETT
Resident Washington Editor
The Iron Age

o o o

WASHINGTON.—The Walsh-Healey Government Contracts Board appeared to be on the last lap in its determination of minimum wage rates in the steel industry this week as Chairman Holland put finishing touches on his draft of recommendations to be approved by the other two board members before being submitted to the Secretary of Labor for final action.

Mr. Holland estimated that recommendations would be handed down within the next two weeks.

It was indicated that the board will not comply with the request of 15 small Eastern producers who asked in a joint brief filed with the board that hearings be reopened in the case to permit adequate information in the record showing the basic common labor rates in similar industries or groups of industries in all localities.

Small Companies Ask Reopening

Companies joining in the statement, received by the board before the Aug. 22 deadline, included the following:

Lukens Steel Co., Coatesville, Pa.; Eastern Rolling Mill Co., Baltimore; Simonds Saw & Steel Co., Lockport, N. Y.; Henry Disston & Son, Inc., Philadelphia; Worcester (Mass.) Pressed Steel Co.; E. J. Lavino Co., Philadelphia; Harrisburg (Pa.) Steel Corp.; E. & G. Brooke Iron Co., Birdsboro, Pa.; Alan Wood Steel Co., Conshohocken, Pa.; South Chester Tube Co., Chester, Pa.; Phoenix Iron Co., Phoenixville, Pa.; Carpenter Steel Co., Reading, Pa.; Central Iron & Steel Co., Harrisburg, Pa.; Troy (N. Y.) Furnace Co.; and Poor & Co., Inc., Troy, N. Y.

The brief, filed by Roberts B. Thomas, counsel, New York, stressed the necessity of permitting geographical differentials within the Eastern district where the SWOC has requested the establishment of a flat 62.5c. minimum and said that any forced increase in minimum rates under present conditions would simply force the closing of plants.

New Pricing System Cited

"It is of general and public knowledge and there are several statements in the record to the effect that a number of the larger producers have but recently announced a new method of quoting prices for their products that differs radically from the basing point system of pricing upon which iron and steel products have been marketed for many years," the board was told.

"Because of the change in price methods, many producers and particularly the small non-integrated companies have been forced to take careful stock of their chances of meeting these reduced prices in their usual markets and to study the possibilities of cheaper production for such markets and other markets and outlets for their products."

It was added that unless a very large increase in volume of business results the small producer must reduce labor costs soon to compete at present market prices. No just rate can be promulgated by the board, the brief concluded, that will not permit the non-integrated companies to exist in competition with the integrated producers. In that connection the board expects a decision from the Labor Department solicitor shortly as to whether wage differentials can be legally fixed on the basis of plant size.

Action of the board in calling the steel industry to Washington for the purpose of fixing a minimum common labor rate based on prevailing wages has been widely interpreted as an SWOC-sponsored move to freeze wage rates at their current levels. It was President Roosevelt who reportedly urged the Labor Department to initiate the proceedings which, under the Public Contracts Act, will result in fixing minimum acceptable labor standards for steel companies doing business with the Government. Minimum wage rates fixed for Government contractors would, however, become the minimum rate for the industry, testimony given to the board at the July 24-26 hearings showed.

Minimum wage determinations in the cement industry, on which public hearings were held in April, 1938, were recommended on July 19 by the board, and the Secretary of Labor has just taken action by notifying members of that industry that further objections may be submitted to her not later than Sept. 9 after which a rehearing may be called or a final order issued. The board regards the cement industry as one of the most difficult to come up for consideration and the steel industry as one of the easiest from the standpoint of fixing minimum rates based on prevailing wages.

Smith, Friend of CIO, Reappointed to NLRB

WASHINGTON.—Noted for his strong bias against the steel industry, Donald Wakefield Smith has been reappointed by President Roosevelt as a member of the National Labor Relations Board for a five-year term in the face of a protest from the American Federation of Labor.

Presidential disregard of the AFL plea that Smith be succeeded by a more "judicial-minded" administrator, laid before the President at Hyde Park just a few hours before the reappointment was announced, was emphasized by the fact that several days prior to the reappointment President William Green of the AFL conferred with the President.

In addition to suggesting changes in the Wagner Act, Green is reported to have urged that Smith not be reappointed. Smith, like the other two members of the Board, has persistently aroused the ire of the AFL because he is considered a tool of the Committee for Industrial Organization.

LE GRIMOIRE DE HYPOCRATE
(Alchemist following the "Conjuring Book of Hippocrates")
DAVID TENIERS. THE YOUNGER
Original in Anhalt. Germany
Ohio Ferro-Alloys Corporation
Canton, Ohio

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Bigness Is Target in Coming Monopoly Probe of Industry

WASHINGTON. — Being a large industry, steel will share prominently in the forthcoming National Economic (monopoly) Committee investigation. For some time different Government bodies have been assembling a large mass of old and current material, and preparing exhaustive graphs, charts and maps. The economic unit of the Department of Justice Anti-Trust Division is the most active of the Government branch in making studies, with close collaboration by such organizations as the Federal Trade Commission and the Securities and Exchange Commission. Contributions also will be made by the Department of Commerce.

The economic position of the steel industry manifestly is an outstanding point of consideration. Under this head comes the question of costs, where efficiency begins and ends, its relationship to size of a company, type of products, together with location as bearing on availability of raw materials and consuming source, so-called domination of markets by small groups and concentration of wealth and power.

Bigness Is Target

There is the thought that bigness even on the part of modern, well located plants, while not frowned upon in all cases, often means excessive costs by reason of greater overhead and other elements, and that smaller units are more efficient, particularly in periods of only moderate or subnormal business. This opinion is partly responsible for much talk about decentralization of industry, though just how far a move, if any, may be made in this direction through revision of the anti-trust laws remains to be seen. Bigness also has been criticized because of its so-called potential power. Complaint is made that large concerns, acting with good faith, entirely within the law, and independently, establish price leadership. Prices they set, though they may be completely justified, are adopted, it is said, by smaller competitors with the result that there is a "rigidity" of prices, which has so frequently been assailed. It is maintained the practice applies to numerous lines, such as steel, copper, aluminum, etc.

Like identical bids, there is a school of thought which argues this uniformity of prices means the absence of competition, and in the instance of steel and other products much of the blame is directed at the basing point system. Nevertheless there are others in the Government who do not share these views and therefore it may well be expected that conflicting conclusions may be laid before the committee by different Government bodies. For example there is forthright report of Assistant Secretary of State A. A. Berle, Jr., to the committee. It sizzles with criticism of many New Deal notions.

Arnold's Views Important

The Department of Justice is expected to be the dominant figure when it comes to revision of the anti-trust laws. Therefore its views, as reflected by Thurman W. Arnold, head of the Anti-Trust Division, and member of

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the committee, are naturally given much weight as reflecting those of the Administration. Obviously the President's anti-trust message to Congress is held to have been shaped on the Department of Justice policy. Or perhaps it is more accurate to say the Department policy was adjusted to the White House policy. It is only fair to say, however, that those who are making studies for the department indicate that they are approaching their tasks with open minds and that they show a broad grasp of their subjects, seeing their complications and their various sides. It can be stated that they do not by any means give the impression of witch hunters. As to what disposition may be made of their studies it is not possible to say. Mr. Arnold himself scoffs at reports that the inquiry will be a witch hunt and insists it will be constructive.

Where "Empire Building Begins"

He has, however, been critical of big business. He has said that the growth of great organizations in America has been amazing, pointing out that 84 per cent of the aggregate corporate net profits is earned by less than 4 per cent of the corporations reporting to the Bureau of Internal Revenue.

"Our problem," he has stated, "is to define the public responsibility of such (great industrial) organizations, and to determine where industrial efficiency ends and industrial empire building begins."

He maintains that the question of prices overshadows the entire subject and has attacked so-called high and rigid prices of steel and other products.

The recent reduction of steel prices has apparently softened the Government's attitude toward the industry on this point. Department of Justice economists now are attempting to analyze the significance not only of price reductions but, more important, of the elimination of price differentials at the various basing points. Regarding the latter they indicate that they are especially interested in what effect the striking out of differentials may have on the smaller steel companies by way of restricting their markets or even threatening the existence of such concerns and whether, in an effort to maintain markets and their competitive position, different groups will merge. At the Department of Justice it was stated that by far most of the complaints over elimination of price differentials have come from the small steel companies.

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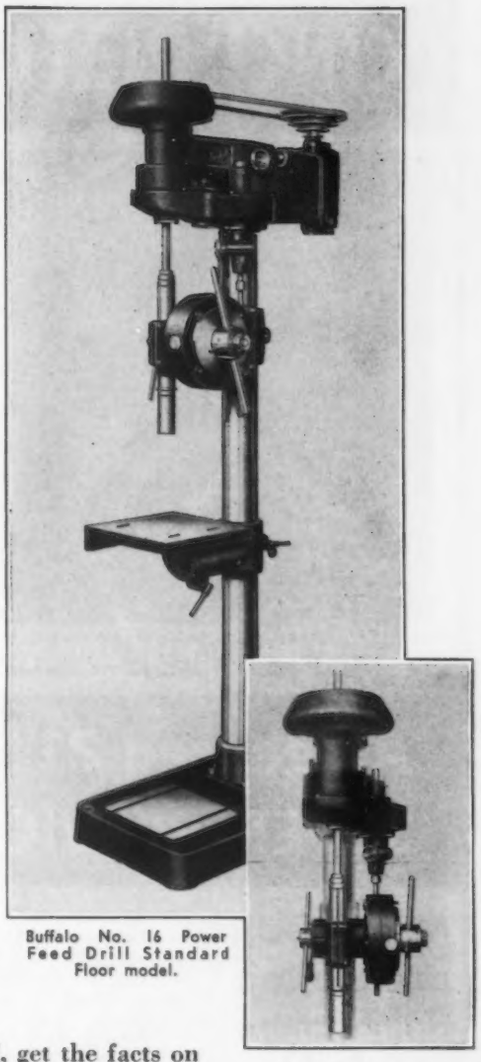

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Bethlehem to Oppose NLRB Shipyard Ruling

WASHINGTON. — An NLRB trial examiner's findings that Bethlehem Shipbuilding Corp.'s employee representation plans at the Fore River yards and the Boston repair plant are "company dominated" and "not legally qualified to act as collective bargaining agencies" will be opposed by the company, it was announced last week.

W. S. Wakeman, Bethlehem vice-president, who pointed out in Boston that the report does not constitute an NLRB decision, was expected to order a protest filed to the recommendations made by Trial Examiner Henry W. Schmidt, who suggested last Thursday that the company disband the employee organization at Fore River and Boston and that it be ordered to bargain upon request with Local 25, Marine and Shipbuilding Workers Union, a CIO affiliate, at the Boston plant.

In announcing Schmidt's recommendations, the board described the company's representation plan as of many years' standing. Plans in effect at both the shipyards and repair shop, the report said, underwent modification after the Supreme Court's validation of the Wagner Act in April, 1937, but the adjustments did not relieve the organizations of "company dominance." The report was based on 10 weeks of testimony taken last spring at Boston on the second set of charges filed against the company. The first charges, filed Feb. 6, 1936, were dismissed after a two-year delay caused by injunction proceedings brought in Federal District Court against the board's conduct of a hearing. The Supreme Court dismissed the injunction last January.

CINCINNATI BICKFORD

Production drilling at the Niagara Machine & Tool Works, Buffalo, N. Y., on 2-21" and 1-28" Super-Service Uprights. (Cincinnati Bickford Radial Drills in the background.)

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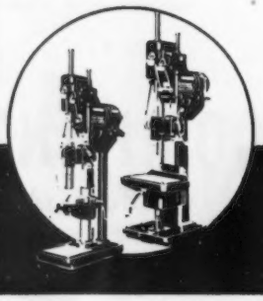


The Cincinnati Bickford Tool Co.
Oakley, Cincinnati, Ohio

Industrial Machinery Exports Show Decline

WASHINGTON.—United States exports of industrial machinery in July were valued at $20,948,548, a 7 per cent decline from the July, 1937, figure of $22,436,301, according to the Machinery Division of the Department of Commerce. Lower shipments were made in all major groups except the power-driven metal-working, and the mining, well, and pumping equipment classes, in which increases of 39 per cent and 7 per cent respectively were recorded.

Valued at $6,488,415, the exports of power-driven metal-working machinery during the month represented a 39 per cent gain over the corresponding figure for last year of $4,665,741. The exports of metal-working machinery (other than power-driven) were 22 per cent lower than in July, 1937, $338,223 compared with $439,351. Overseas consignments of mining, well, and pumping equipment during July showed a 7 per cent advance over a year ago, $6,177,260, compared with $5,764,288.

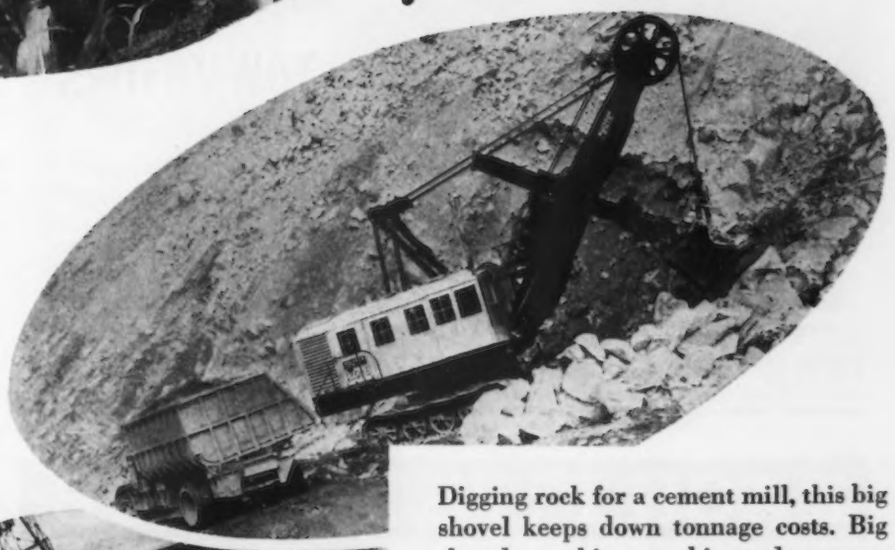
U. S. Awards $208,585 Pipe Lining Contract

WASHINGTON. — The Bureau of Reclamation has awarded a $208,585 contract to the Puget Sound Machinery Depot, of Seattle, for the fabrication and welding of steel pipe lining for 40 outlet conduits at Grand Coulee Dam. The steel pipes, 102-in. in diameter and of 5/8-in. steel, will be welded into sections and fitted together before being disjointed for shipment to the dam.

Plowing Corn...

Opening new markets for farm tractors, Allis-Chalmers designed this new Model B. With 9 HP drawbar pull, this tractor offers mobile, economical power for many industrial uses. Despite the moderate cost of this tractor, more than a dozen highly stressed parts are forged from long-wearing Nickel alloy steels.

...Digging Rocks



Digging rock for a cement mill, this big shovel keeps down tonnage costs. Big shovels, working at a big-yardage pace, need the extra strength and wear resistance of Nickel alloy steels. Bucyrus-Erie engineers developed a special Nickel alloy steel, similar to SAE 3135, and special heat treatments to achieve higher physical properties.

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Grand Coulee, three times bigger than Boulder Dam, is being built with hoists which speed materials 550 feet aloft. Hoisting machinery is safeguarded by the extra strength of Nickel alloy steels. Paradox gates which plug the Columbia River, hold raging water and resist abrading silt, are made of Nickel alloy steels with tensile strengths from 80,000 to 110,000 p.s.i.

Your consultation regarding the uses of Nickel is invited.

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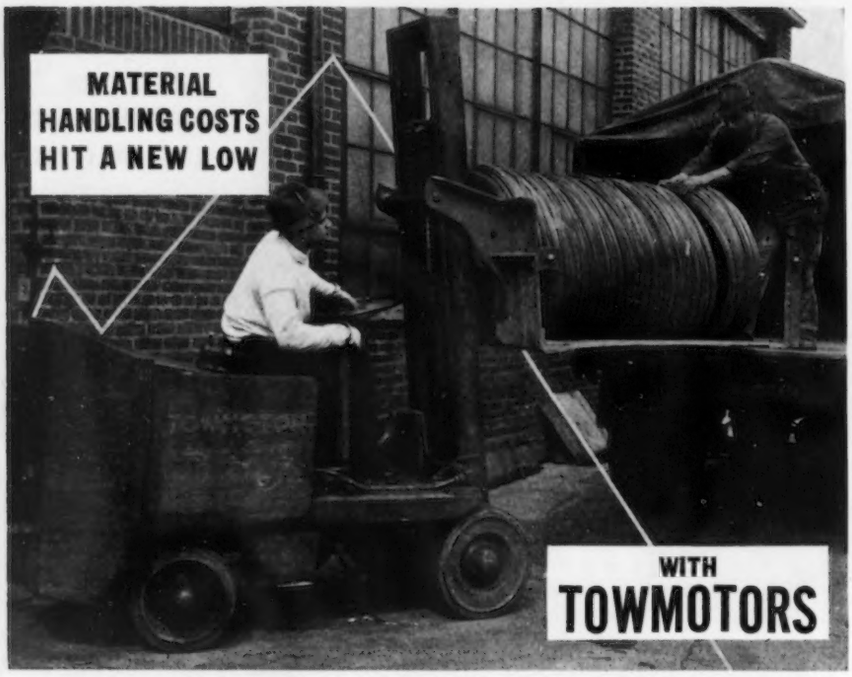

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Price Dip Clouds Farm Outlook, A.S.&W. Finds

CLEVELAND.—Agricultural income during the last half of 1938 will be more evenly distributed than in the corresponding period last year, according to a survey by American Steel & Wire Co., which points out that because of lower prices the general outlook for the last half is not quite as good as the same period of last year.

Benefit payments by the AAA are likely to be larger during the second half of this year than the same period last year. The very low price of wheat and the low price of cotton are among the factors tending toward lower farm income.

Gear Makers Plan Fall Meeting

A COMPREHENSIVE program of commercial and technical topics has been planned for the 21st semi-annual meeting of the American Gear Manufacturers Association, to be held at Skytop Lodge, Skytop, Pa., Oct. 10-12. Technical discussions will include worm gear materials, characteristics and control of general-purpose motors, gear motor applications, and measurement of gear noises. An address on "Selling for the Purchasers Angle" will feature the commercial discussions. J. C. McQuiston, 602 Shields Building, Wilkinsburg, Pa., is manager-secretary of the association.

Du Pont Develops New Methacrylate Finishes

A NEW line of clear finishes for industrial use is announced by the Finishes Division of E. I. du Pont de Nemours & Co. The development represents another step in the expansion of the methacrylate resins into the finishes field.

Finishes with a methacrylate base are said to afford unusual adhesion and flexibility over bare, non-ferrous metals such as aluminum, chromium and brass. They deposit a glossy, water-white film which dries rapidly by evaporation. The coating is hard and non-yellowing, resistant to acids, alkalies and alcohol. It has demonstrated satisfactory durability under outdoor exposure.

The new finish may be applied by any of the usual methods, such as brush, spray or dip. It has been designated as the RC-900 line.

Mexico Lowers Duties On Some Steel Products

WASHINGTON.—Effective Aug. 27, a Mexican decree reduces to former, or to lower rates, duties on a number of iron and steel products along with other commodities on which rates had been increased by a decree of Dec. 31, 1937. Among steel items on which duties were restored to previous level, or lowered, are pipes and tubes and their connections, barbed wire and cables. By a decree of Aug. 15, which became effective on Aug. 30, reductions of 33 to 75 per cent were made on certain sheets and tubes. There were also some changes in tariff classifications.

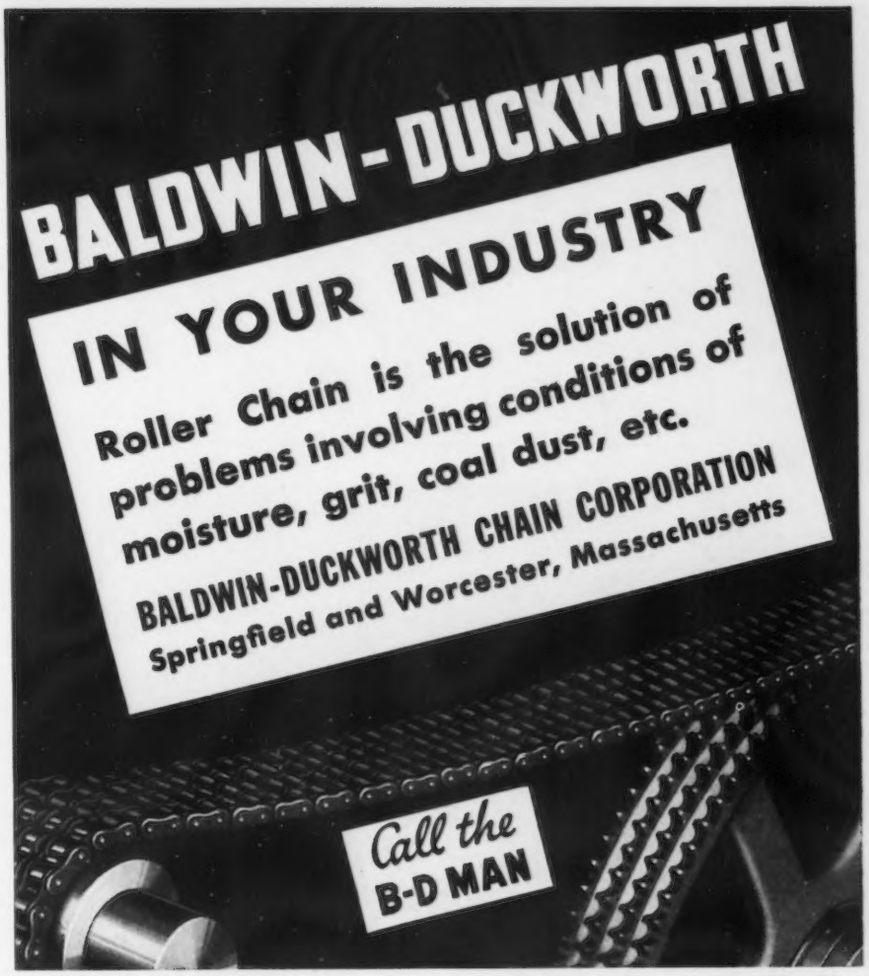
CIO Affiliate Wins Another NLRB Verdict

WASHINGTON.—The National Labor Relations Board has issued an order against Freed Heater & Mfg. Co., Collegeville, Pa., based upon a settlement agreement disposing of unfair labor practice charges filed against the company by Amalgamated Association of Iron, Steel and Tin Workers of North America, Lodge No. 1847, CIO affiliate. Under the terms of the board's order, the company is required to disestablish the Independent Mutual Beneficial Association, an unaffiliated labor organization, as representative of any of its employees, and to cease discouraging membership in the Amalgamated.

Farrel-Birmingham Expands Foundry Space

CONSTRUCTION of additional foundry building space has recently begun at the Ansonia, Conn., plant of Farrel-Birmingham Co., Inc. The new building will add 4000 sq. ft. of floor area. Included in the new equipment to be installed is a 15-ton traveling crane, a large molding machine and a modern sand-handling system for the elimination of dust and for reclaiming sand from molds used in the Randupson process.

R. G. Haskins Co., manufacturer of flexible shaft equipment and high speed tapping machines, has moved to its new building at 615 South California Avenue, Chicago. The move to larger quarters was necessitated by the need for additional manufacturing facilities.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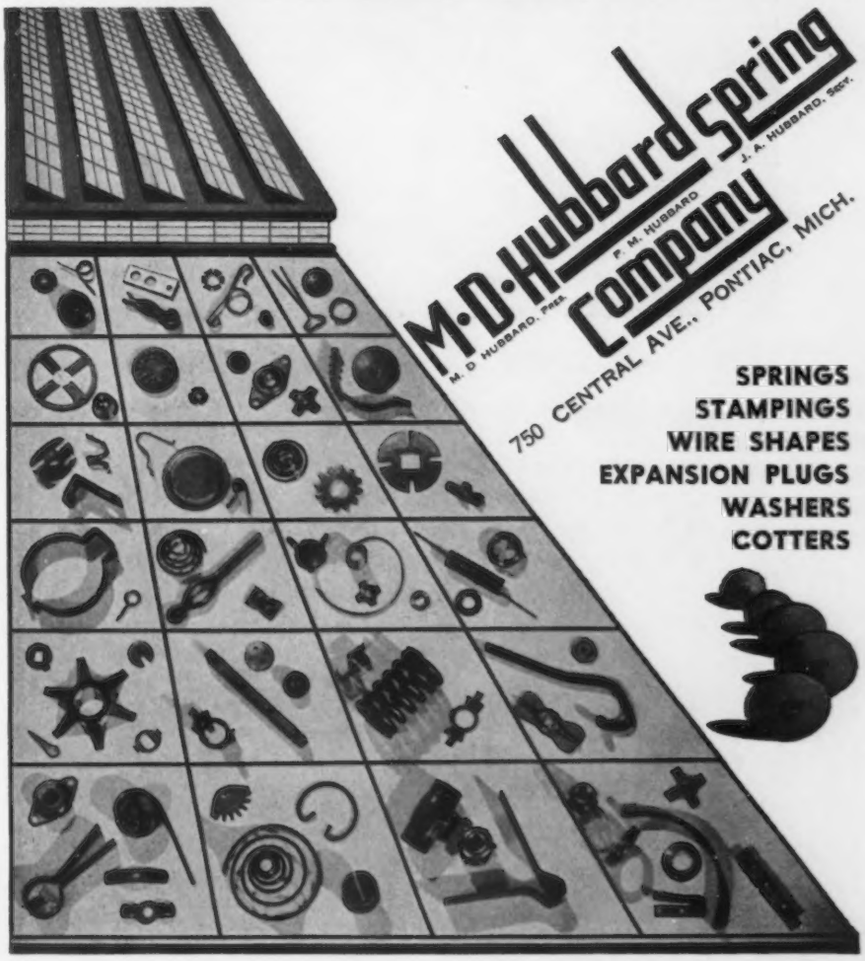

..PERSONALS..

R. J. McCABE, for 30 years with the Western Electric Co. and the Graybar Electric Co., has been named manager of sales, electrical materials, by the Indiana Steel & Wire Co., Muncie, Ind. He will direct the sale of the company's telephone and telegraph wire and other wire products to the public utility field. JAMES L. GALBRAITH, who has served as assistant sales manager for the past 12 years, has been made manager of sales for manufacturer's wire and merchant trade products. P. G. GULLETT, assistant sales manager, has become office manager of sales. He has been identified with the company for more than 35 years.

❖ ❖ ❖

HARRY E. SLOCUM, chief chemist, Pittsburgh Works, Jones & Laughlin Steel Corp., has taken over the supervision of the Aliquippa works' chemical laboratories in addition to his present duties. The Aliquippa works laboratories were formerly under the direction of the Aliquippa metallurgical department.

❖ ❖ ❖

R. W. KRASS has been appointed central station manager of the Eastern district, Westinghouse Electric & Mfg. Co. and will continue his duties as manager of the marine division. Mr. Krass, a graduate of Cornell University, joined the Westinghouse,

R. J. McCABE

Church, Kerr Co. as an electrical engineer in 1906. In 1910 he went to the New York Edison Co. as cable engineer and since 1919 has been identified with the central station and marine sales departments of Westinghouse in the New York office.

❖ ❖ ❖

J. E. LINABURY is joining the Saginaw Malleable Iron division of General Motors Corp. and is to be in charge of development work, it has been announced by W. H. DOERFNER, general manager. Mr. Linabury was born in Pontiac, Mich., and graduated from University of Michigan with an M.E. degree. He originally joined General Motors in 1909, later leaving to engage in manufacturing and engineering work until 1920 when he rejoined General Motors. In the next 10 years he modernized the Saginaw Malleable Iron division foundry and the Cadillac foundry and the plant which later

Immediate delivery made certain by TIGER CRANE

The overhead crane is a big part of "immediate delivery" in a steel warehouse. This Tiger, with scale attached (one of six in the plant) makes it possible to fill orders promptly, safely and economically.

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WHITING CORPORATION
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WHITING
PIONEERS SINCE 1884

became the Chevrolet gray iron foundry. After this he started the Harrison Radiator Division foundry in Rockport, N. Y. In the late 20's he

J. L. GALBRAITH

P. G. GULLETT

designed the new Buick and Pontiac foundry. Because of ill-health he took leave of absence in 1930 and went to England. Later he returned to this country and took charge of centrifugal casting work for the Campbell, Wyant & Cannon Foundry at Muskegon, Mich. Mr. Linabury returned to General Motors in 1935 and since that time has designed and built the gray iron and malleable foundries at McKinnon Industries of Canada (General Motors).

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GEORGE ELLERTON, JR., formerly an official of Electric Heating Equipment Co., Philadelphia, is now associated with Faville-LeVally Corp., Chicago, in the steel mill division.

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H. G. DANIELSON, who has been identified with the oven and heating equipment industry for the past 20 years, has joined the sales staff of the industrial oven division of the American Machine & Foundry Co., New Haven.

❖ ❖ ❖

STRICKLAND KNEASS, JR., has been appointed manager of the combustion control department of the Morgan Construction Co., Worcester, Mass. He will have charge of the sale and development of the Isley furnace con-

● A good impression, in the shape of steel stampings, is formed by high speed presses when Thomas Cold Rolled Strip is used. Thomastrip is rolled to match the job, and the selected finishes make for better and more economical production. In addition to bright cold rolled strip, there are electro coated finishes in copper, zinc, brass, and nickel . . . every one of which satisfies specific demands. Send for samples or have a Thomas representative call so that you may actually know the advantages of Thomastrip in your production.

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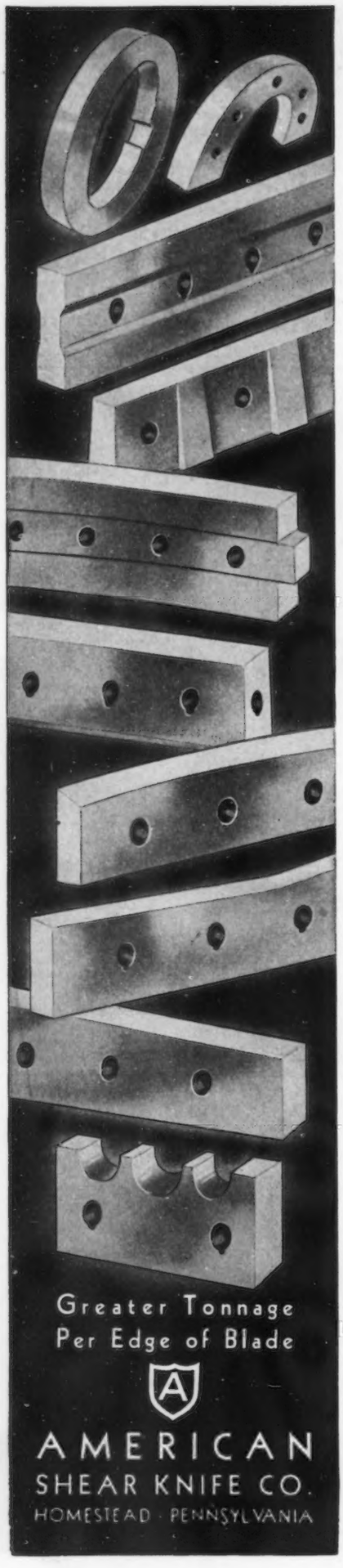

trol system. He has been recently with the Gulf Oil Corp., Pittsburgh, and previously had extensive combustion and furnace engineering experience as manager of the Costello Engineering Co., and as steam engineer of the Youngstown Sheet & Tube Co.

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J. EDWARD WEIT has been elected president of Atlas Bolt & Screw Co., Cleveland, and Atlas Car & Mfg. Co. He became associated with the bolt company in 1900 and has been vice-president and sales manager. E. W. SHELLENTRAGER, chief engineer of car manufacturing for many years, has been elected vice-president.

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J. H. RIDDLE, who has been identified with the Milcor Steel Co., Milwaukee, for the past 23 years, has been appointed manager of the newly-opened warehouse of the company in Rochester, N. Y.

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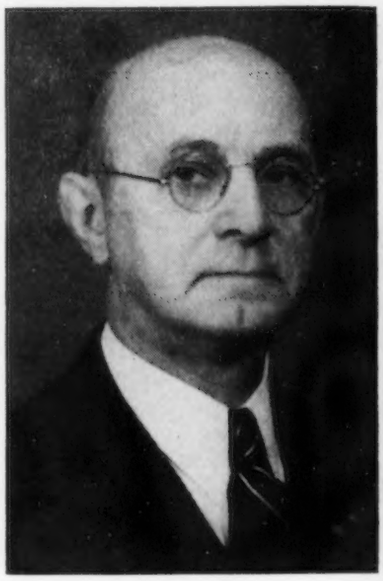
J. R. FENSTERMAKER has been elected president of Hugh J. Baker Co., Indianapolis, to succeed the late Hugh J. Baker.



J. E. WEIT

WILLIAM N. GOGGIN, of Goggin & Goggin Co., Chicago, has been appointed sales representative in the Chicago district for the Salem Engineering Co., Salem, Ohio. F. R. WILSON,

CUT HOLES

Easier . . . Faster . . . Cheaper!

MARVEL Hole Saws out-cut and out-live any other ordinary hole saw in portable drills. They also have the extreme strength for drill press and lathe use, and the set for deep drilling up to 1⅛" in steel.

They possess the exclusive MARVEL feature of a composite non-breakable saw: a genuine 18% Tungsten High Speed Steel cutting edge, welded by a special process to a chrome vanadium body. With this construction you get the fastest cutting, longest lasting cutting edge available—PLUS a hole saw that can easily withstand the terrific peripheral speeds of small drill presses and portable drills. Proportionately heavier arbors (with high speed pilots) have solid hexagonal shanks that fit both 2 or 3 jaw chucks. Sizes from ¾" to 4⅛" diameter. Write for name of local distributor.

MARVEL

High-Speed-Edge

HOLE SAWS

For portable drills, drill press and lathes

ARMSTRONG-BLUM MFG. CO. 5749 Bloomingdale Ave. CHICAGO, U. S. A.

"The Hack Saw People"

Eastern Warehouse and Sales: 199 Lafayette St., New York.

J. H. RIDDLE

of Birmingham, Mich., has been made representative in the Detroit district.

❖ ❖ ❖

FRANK MORROW, who has been employed in the Detroit area for the last six years by the Standard Alloy Co., Inc., Cleveland, will also cover the Indiana territory for the same company.

❖ ❖ ❖

J. F. O'DONNELL has been appointed assistant sales manager, Westinghouse merchandising division, with headquarters at Mansfield, Ohio. Mr. O'Donnell has been the Westinghouse central district merchandising manager for the past four years, and has been connected with Westinghouse since 1920.

❖ ❖ ❖

R. C. COSGROVE has been appointed manager of household refrigeration department and T. J. NEWCOMB manager of the commercial refrigeration department.

Dravo Corp. Starts Barges For Marquette Cement Co.

DRAVO CORP., Pittsburgh, has begun manufacture of three semi-welded hopper type barges ordered by the Marquette Cement Mfg. Co., Chicago, for hauling coal on the Illinois River. The barges will have hull dimensions of 195 x 35 x 11 ft. and will be of conventional river design, hopper type, except for a raised coaming at the main deck level. The framing will be riveted but all deck, side and bottom plating is to be welded with the exception of side and hopper plating in way of the side and hopper frames, where rivets will be used.

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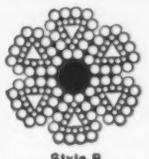

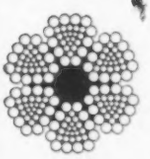

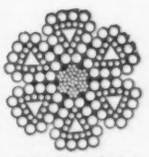

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There is no guesswork when you use "HERCULES" (Red-Strand) Wire Rope. It is designed and built to do specific jobs better . . . safer . . . more economically. Furnished in a wide variety of constructions so as to be suitable for all purposes—each backed by 81 years of manufacturing experience and close co operation with users.

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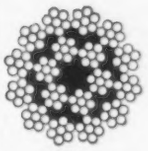

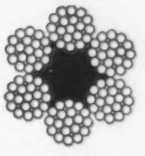

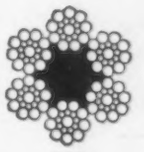

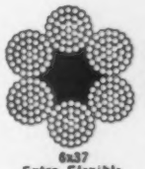

. . . THE NEWS IN BRIEF . . .

Buick buying 13,000 tons of steel; brings commitments up to 35,000 tons for 90 days production . . . Output of 1939 models speeded; public announcements to be made soon . . . Ford gives purchase orders for hydraulic brake parts—Page 49.

Iron-steel imports and exports drop slightly.—**Page 43.**

United States producers supplied 25 per cent of the Argentine July imports of tin plate, sheets, pipe and wire.—**Page 46.**

Steel in use in 1937 reaches new peak, 1,050,000,000 tons. Since 1900 the tonnage of steel in use in this country has increased 16 times as fast as population.—**Page 47.**

A group of 300 British industrialists, engineers and metallurgists to be entertained by steel executives in October.—**Page 47.**

Public Contracts Board's recommendations on minimum steel wage expected by Chairman Holland to be handed down within two weeks as request by 15 small companies for reopening of hearing is rejected.—**Page 48.**

Donald Wakefield Smith, friend of CIO, is reappointed a member of the Labor Board as Roosevelt disregards protests of AFL.—**Page 50.**

Bigness is target in coming monopoly probe of industry.—**Page 50.**

Bethlehem Shipbuilding Corp. plans protest against NLRB examiner's findings that its employee representation plan, established 20 years ago, is company-dominated and that the company should be forced to bargain with a CIO affiliate.—**Page 52.**

July exports of industrial machinery from the U. S. totaled $20,948,548, a 7 per cent decline from foreign shipments in the like month of a year ago.—**Page 52.**

Bureau of Reclamation at Washington awards a $208,585 contract for steel pipe lining fabrication and welding to Puget Sound Machinery Depot.—**Page 52.**

A broad program of commercial and technical topics planned for October meeting of the American Gear Manufacturers Association.—**Page 54.**

Du Pont develops new methacrylate finishes.—**Page 54.**

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CONVENTIONS

Sept. 26 to 30—Association of Iron and Steel Engineers, Cleveland.
Oct. 10 to 14—American Institute of Steel Construction, French Lick Springs, Ind.
Oct. 12 to 14—Porcelain Enamel Institute, University of Illinois, Urbana, Ill.
Oct. 12 to 15—The Electrochemical Society, Rochester, N. Y.
Oct. 13 to 15—Society of Automotive Engineers, aircraft production meeting, Los Angeles.
Oct. 14 to 15—American Society of Tool Engineers, Pittsburgh.
Oct. 17 to 20—American Institute of Mining and Metallurgical Engineers, Detroit.
Oct. 17 to 21—National Metals Congress, Detroit.

Price dip clouds farm outlook, a survey by American Sheet & Wire Co. shows.—**Page 54.**

Amalgamated Association of Iron, Steel & Tin Workers, a CIO Affiliate, wins NLRB decision against Freed Heater & Mfg. Co.—**Page 55.**

Mexico restores lower duties on some iron and steel products, effective Aug. 27.—**Page 55.**

Farrel-Birmingham Co. constructs additional foundry building space at its Ansonia, Conn., plant.—**Page 55.**

Dravo Corp. begins construction of three semi-welded hopper type barges for Marquette Cement Mfg. Co., Chicago.—**Page 59.**

General Electric Co. will equip a featherweight, streamlined subway car to be used in experimental service by the B-M-T, New York.—**Page 68.**

American Hot Dip Galvanizers' Association studies coordination of advertising and sales programs.—**Page 69.**

Weldrods Corp. announces plan to spend $500,000 on Cleveland area factory which eventually will employ 600.—**Page 70.**

Federal Government departments in the latest reported week gave contracts for $145,688 of iron and steel products, against $282,800 in the preceding seven days, the Public Contracts Board announces.—**Page 70.**

American Society of Mechanical Engineers through its committee on rubber and plastics will sponsor a symposium on rubber to be held Oct. 5 at Providence.—**Page 70.**

Directors of Hunter Steel Co., Pittsburgh, approve plan to manufacture ingot molds.—**Page 89.**

American Rolling Mill Co. takes no action on its 4.5 per cent preferred stock dividend.—**Page 89.**

From the big re-heating furnace to the smallest part of the roughing train, Morgan engineering experience and painstaking accuracy are reflected in dependable operation and the smooth flow of production at high speeds.

R46

...OBITUARY...

HUGH J. BAKER, president of the company of the same name, Indianapolis, whose death was announced in these columns last week, was born in 1882 and graduated in 1905 from Ohio State University with the degree of civil engineer in architecture. His first employment was with the American Bridge Co., Ambridge, Pa., going to Indianapolis in 1907 with the Brown Ketcham Iron Works. In 1910 Mr. Baker established an office as consulting engineer and a year later formed a partnership known as the Fireproofing Co., with his brother-in-law, J. Ralph Fenstermaker, now president of Hugh J. Baker & Co. Mr. Baker was active in Indianapolis civic affairs, a member of the ASME, American Concrete Institute and the American Iron and Steel Institute.

❖ ❖ ❖

ANTHONY CARLIN, president and treasurer of the Anthony Carlin Co., Cleveland, maker of rivets, died Aug. 20 in a Cleveland hospital at the age of 81. Born in Ireland, he went to Cleveland as a boy, learning the molders' trade and in 1887 organized the Standard Foundry & Mfg. Co. The Carlin company was incorporated in 1918.

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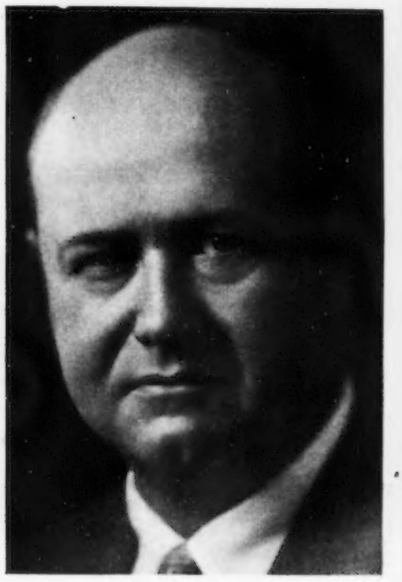
C. PARKER HOLT, vice-president and director of Caterpillar Tractor Co., Peoria, Ill., and for nearly 40 years affiliated with it and one of its predecessors, died in Piedmont, Cal., on Aug. 24, aged 58 years. After two years of post-graduate engineering study at Cornell University, he joined the Holt Mfg. Co., Stockton, Cal., which had been founded by his father and which developed the "Caterpil'ar" track-type tractor. He was made vice-president and director of the company in 1905 and developed the export selling organization of the company. When the Holt company was taken over by the Caterpillar Tractor Co. in 1925 he was made export manager. The following year he became a vice-president and in 1934 executive vice-president.



H. J. BAKER

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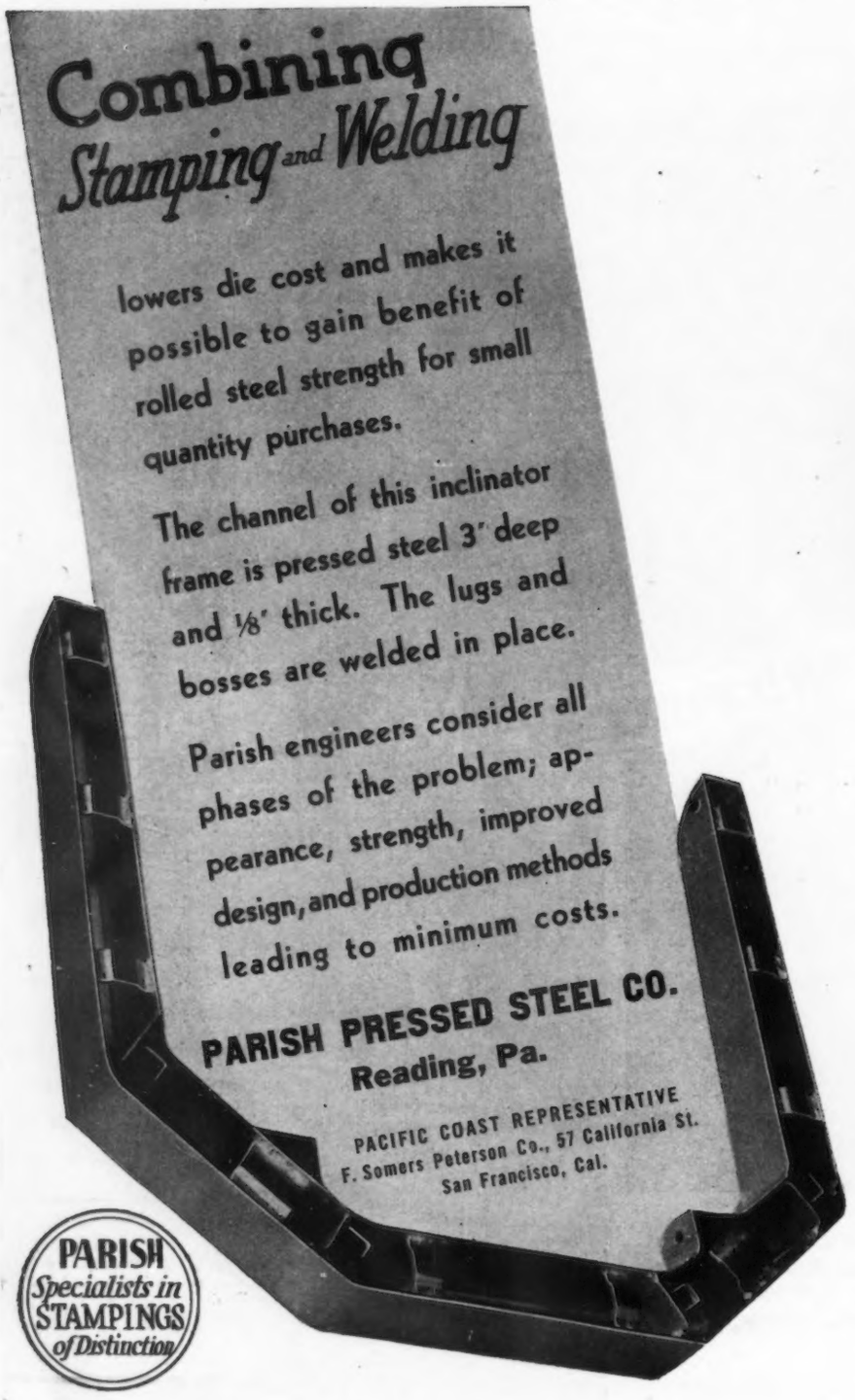
THOMAS J. MCCORMICK, member of the firm of construction engineers which built the East Boston Tunnel and the Belmont Tunnel under the Hudson River, died Aug. 24 at Riverside, Ont., where he had lived the last 18 years. He was born in Boston on May 29, 1871. He was a member of the firm of Schailer & McCormick and


Combining
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lowers die cost and makes it possible to gain benefit of rolled steel strength for small quantity purchases.
The channel of this inclinator frame is pressed steel 3" deep and 1/8" thick. The lugs and bosses are welded in place.
Parish engineers consider all phases of the problem; appearance, strength, improved design, and production methods leading to minimum costs.
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PACIFIC COAST REPRESENTATIVE
F. Somers Peterson Co., 57 California St.
San Francisco, Cal.
PARISH
Specialists in
STAMPINGS
of Distinction

was a member of the Engineers Club of New York.

❖ ❖ ❖

EMERY L. GARMAN, president of Garman Tool & Die Co., was buried Aug. 21. He was killed during the previous week in an auto accident in Iowa while enroute to Yellowstone Park on a vacation trip. Burial was at Akron, Ohio, where Mr. Garman was born 71 years ago.

❖ ❖ ❖

FLOYD J. ANDERSON, 42 years old, formerly in charge of production at the Bower Roller Bearing Co., Detroit, for more than 20 years, was buried Aug. 24. He died at Grand Rapids, Mich., after a month's illness.

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GEORGE LOVE, 63 years old, general manager of the Detroit Refrigerating Co., was buried at Freeland, Mich., after funeral services in Detroit Aug. 23.

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PERRY L. TENNEY, 55 years old, sales engineer for the diesel division of the General Motors Corp., died at East Lansing, Mich., Aug. 27. Mr. Tenney, a resident of East Lansing for seven years, was formerly research engineer for the Olds Motor Works, going to Lansing from Muncie, Ind., where he was chief engineer for the Muncie Products Co.

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RALSTON G. JOHN, former purchasing agent for Morgan & Wright and the U. S. Rubber Co., and for three years owner of the Banner Brass Co., Detroit, was buried at Detroit Aug. 27. Mr. John, who died of injuries he received in an automobile accident, had been in Detroit 27 years and had been a salesman for the F. B. Stevens Co. for 11 years. He was an honorary member of the Detroit Purchasing Agents Association.

❖ ❖ ❖

CHARLES W. OWSTON, 60 years old, vice-president of the McCord Radiator & Mfg. Co. until 1931, died Aug. 25 at Maplewood, N. J. Mr. Owston, who was born in Maplewood, had lived in Detroit 25 years. After leaving the McCord Company in 1931, he had rejoined it two years ago and had retired in January, 1938.

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VINCENT W. ALLEN, assistant works manager of the Bridgeport Brass Co., died on Aug. 25, aged 49 years. Mr. Allen was graduated from Massachusetts Institute of Technology, and was one of three executives of the Bridgeport Brass Co. who made a tour of Europe in 1936 for the purpose of studying design and methods of production used in copper and brass mills of England and the Continent.

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EMANUEL TOBIESSON, for 30 years an electrical engineer for the Allis-Chalmers Mfg. Co., Milwaukee, died on Aug. 22, aged 59 years. His death occurred at his native city of Mandal, Norway, while on a tour of the Scandinavian countries on leave of absence. He came to the United States about 35 years ago. Burial was at Mandal.

❖ ❖ ❖

EDWARD S. TOBIN, president and proprietor of the Cream City Smelting Co., Milwaukee, died on Aug. 17, aged 63 years. He became general

Until you grow an **EXTRA HAND...**

...do all your indicating work on a **Taft-Peirce Bench Center**

You don't feel the need of three hands, when you work with a Taft-Peirce Bench Center. One hand does the work of two... holds the work, and withdraws the spring center with a lever. No danger of dropping and damaging work. And for extra safety on heavy jobs, spring center can be locked in place. Accuracy is safeguarded by T-slot alignment of head and tailstocks. No shims are used. Standard model can be fitted with dividing head, sine bar indexing face plate, or gear rolling fixtures, as extra accessories. Write for sizes, specifications, prices.

THE TAFT-PEIRCE MFG. CO.

WOONSOCKET, RHODE ISLAND

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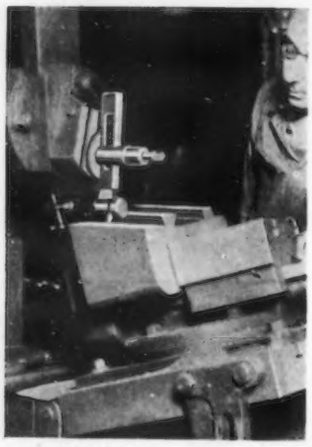

You can't save on ARMSTRONG TOOL HOLDERS . . . you save with them

When it comes to cutting costs, you can't save on ARMSTRONG TOOL HOLDERS. To try to do without the right one for each job, to "get-by" with makeshift or hand-forged tools, is certain to **add** to your costs.

With ARMSTRONG TOOL HOLDERS you are permanently tooled-up (time and tool cost saved); any mechanic can make or re-sharpen a cutter-bit in a few minutes ("dressing" delays eliminated, machine hours saved); each ounce of steel in a bit does the work of 10 ounces on a bar (steel consumption cut to 1/10); bits can be used down to the last inch (no waste in heavy tool "stumps"); and since each ARMSTRONG TOOL HOLDER is a multi-purpose tool that does the work of a complete set of forged tools, heavy investment in costly steels and high costs of storing and handling are ended.

If you are seriously interested in cutting cutting-costs to the absolute minimum, buy more ARMSTRONG TOOL HOLDERS . . . adopt the Armstrong System and "Save All Forging, 70% Grinding, and 90% High Speed Steel" on every operation on every lathe, planer, slotter and shaper.

Write for Catalog B-35

ARMSTRONG BROS. TOOL CO. *"The Tool Holder People"*
309 N. Francisco Ave., CHICAGO, U.S.A.
Eastern Warehouse & Sales—199 Lafayette St., N. Y. London San Francisco

This Unusual RIDGID Alloy Tool-Steel Wheel-Blade Gives You

- Faster
- Lower Cost
- Pipe Cutting

Your skill at mechanics makes it easy for you to see why this RIDGID Cutter with its new style wheel-blade can cut pipe more quickly and cleanly and last far longer, giving you extra economy.

For the RIDGID knife-like blade is coined out of fine tool steel, hammered, heat-treated and then assembled in the hub. That's what gives it the unusual stamina for hundreds of extra cuts, reducing your cutter wheel expense, as thousands of users have found.

Powerful housing, guaranteed warp-proof, always cuts true, twirls easily to your pipe size. You like the "feel" of this tool, enjoy working with it.

For time and expense saving and a tool you get a "kick" out of owning and using, buy the RIDGID Cutter—at your Supply House.

THE RIDGE TOOL CO., ELYRIA, OHIO

RIDGID PIPE TOOLS

superintendent of the firm in 1896, and acquired the entire interest in 1921. Mr. Tobin was born in Milwaukee.

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CARROLL R. SLENSBY, of Milwaukee, Wisconsin representative of the General Alloys Corp., Boston; the Chandler Products Co., Cleveland, and the National Rivet & Mfg. Co., Waupun, Wis., died on Aug. 16, aged 41 years. He was born in Milwaukee and was a veteran of the World War.

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FRED A. MILLER, honorary chairman of the board of the S. R. Dresser Mfg. Co., Bradford, Pa., died at his home in that city on Aug. 22, aged 70 years. He had been identified with the company for 35 years, and had been president since 1911.

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GEORGE S. BOWMAN, purchasing agent of the old American Iron & Steel Co., before that company was taken over by the Bethlehem Steel Co., died recently at his home in Cambridge, Md., aged 85 years.

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CARL L. PFEIFER, treasurer of the Chain Belt Co., Milwaukee, died on Aug. 24 at Philadelphia, Pa., while on an Eastern business trip. He was 57 years of age. Mr. Pfeifer became associated with the firm in 1914 and was elected treasurer on Dec. 27, 1916. A son, Herbert, is a member of the advertising department of the company, and his other son, Lowell, is an instructor in the engineering school of Marquette University, Milwaukee.

❖ ❖ ❖

GLENDON C. BROWN, electrical engineer for Cutler-Hammer, Inc., Milwaukee, since 1928, died of a heart attack on Aug. 20, aged 31 years. He was a native of Fargo, N. D. Mr. Brown was a member of the American Institute of Electrical Engineers and a member of several honorary engineering societies.

❖ ❖ ❖

WILLIAM H. BOWE, president of the Herrick Co., Boston, died at a Melrose, Mass., hospital on Aug. 14. Two years ago he celebrated his 50th year with the company. He was a past president of the New England Iron and Hardware Association. He was 74 years old.

RAILROAD BUYING

Bessemer & Lake Erie has leased, with option to buy, 100 light-weight steel box cars from Pullman-Standard Car Mfg. Co.

Ferrocarill de Antioquia is taking bids on two 2-8-2 locomotives.

American Car & Foundry Motors Co. has received the following orders for motor coaches: Eight from Houston Electric Co., Houston, Tex.; eight from Worcester Street Railway Co., Worcester, Mass.; one from Boston, Worcester & New York Street Railway, Boston; one from Union Bus Co., Jacksonville, Fla., and three from Southeastern Greyhound Lines, Lexington, Ky.

The Association of American Railroads has announced that class I railroads and the Pullman Co., in the year ended July 1, 1938, air-conditioned 1384 passenger cars. Of that number, 1003 were air-conditioned by the rail roads and 381 by Pullman Co.

Structural Steel Orders Off Slightly in July

ORDERS for fabricated structural steel in July were slightly below those of June, according to the monthly report of the American Institute of Steel Construction. The estimated total for July is 87,154 tons against 99,899 tons (revised) for June. However, July orders were well above the monthly bookings for the first half of the year, "indicating," the Institute comments, "a sustained improvement in the volume of new business." For the first seven months of 1938 bookings were 577,254 tons compared with 1,077,140 tons in the corresponding period of 1937.

Youngstown Proceeds With Financing Plan

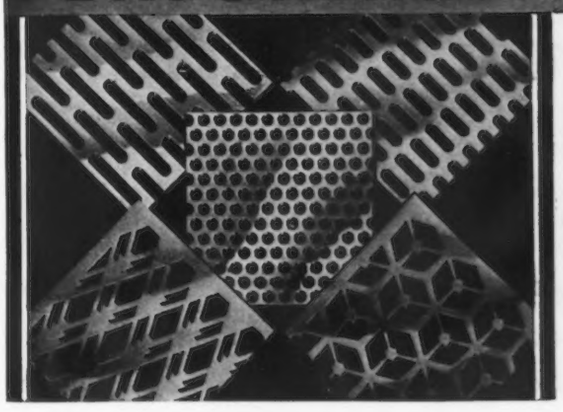
STOCKHOLDERS of Youngstown Sheet & Tube Co. at a special meeting Aug. 30 in Youngstown waived preemptive rights for a period of one year on not exceeding 500,000 authorized and unissued common shares, and empowered the directors to confer upon the holders of any securities which may be issued by the company the right to convert these securities into common shares. The company is thus enabled to proceed immediately toward completion of a $30,000,000 financing program. Present plans call for issuance of convertible ten-year debentures. After repayment of $12,500,000 existing bank loans the remainder would be used for plant improvements and additions both at Youngstown and Chicago, but mostly in the latter district.

. . . ranging from those made of heavy bar or rod, hot coiled—to tiny springs made from fine piano wire. In all GIBSON Springs, an elaborate system of scientific control insures accuracy to specifications. Only a large well-equipped plant can turn out such quality springs at ordinary prices. Design engineering service on request.

WILLIAM D. GIBSON CO.
Div. of Asso. Spring Corp. 1800 Clybourn Ave., Chicago, Ill.

May we quote on your requirements for SPRINGS SMALL STAMPINGS WIRE FORMS?

PERFORATED METALS



• The H & K line embraces all the standard and many special and exclusive shapes and sizes of perforations. We have booklets and catalogs covering different groups, which we will gladly send, if you will give us a line regarding your requirements.

Great care is exercised that our customers receive the best in perforated metal.

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No Sign of Early Wage Cut Despite

PITTSBURGH.—Steel manufacturers in the Pittsburgh area and in other leading steel producing centers this week looked for Washington to make the next move, possibly within the next two weeks, in the wage-price situation.

With most companies facing heavy third quarter losses despite a slowly rising rate of mill operations, leaders in the industry, according to a survey just completed by THE IRON AGE, almost unanimously agree that:

1—Prices for steel during the fourth quarter of 1938 will remain unchanged although a few adjustments are possible.

2—Steel wages should be reduced as soon as possible as a matter of ordinary business prudence.

Many of the steel executives also look for the Walsh-Healey Public Contracts Board at Washington to "freeze" current minimum pay rates for companies accepting Government orders.

Just how much control the steel industry retains over its wages in view of tremendous political pressure from the New Deal and its labor allies remains, however, the most important point of discussion in this and other steel centers.

President's Remarks on Wages Still a Mystery

And still the biggest mystery of the steel wage-price situation this year is President Roosevelt's late June radio statement (dropped into his prepared speech just before delivery) that he had been told that steel wages "would not be reduced."

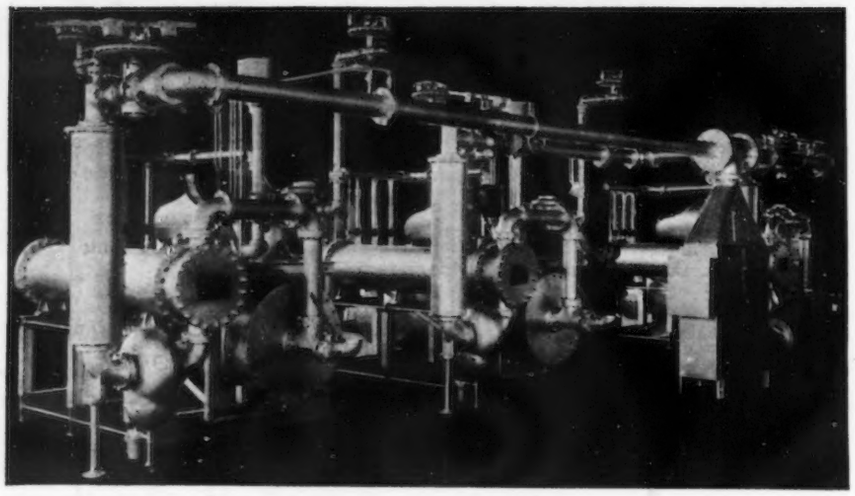
Since plans to reduce wages shortly after the June price announcements have been made by virtually all the larger steel companies, the President's surprise remark on wages left the steel industry suffering from first degree burns. No one has yet been able to find the steel man who is said to have assured somebody at the White House that wages in the steel industry would not be reduced.

To some steel executives inclined to follow along in some of the President's objectives the Roosevelt statement was an eye-opener, something of an educative nature to be charged up to experience. Instead of being in the usual "one" hole in planning a wage cut to follow the third quarter price reductions, the steel industry in late July found itself on the edge of "two" holes.

First, any wage reduction, however necessary, would have been understandably unpopular with the steel workers and the public. Second, and here was the other hole into which the steel industry found itself sliding, if wages were cut following the President's radio remark the steel industry would ostensibly be in the position of having broken faith with the President.

A statement by the President that

Another New Continuous Hot Strip Mill



INSTALLS KEMP ATMOS-GAS PRODUCERS

TREND, says the dictionary, is an "inclination in a particular direction; tendency". . . so in the world of bright annealing, there's a **TREND** toward Kemp equipment that is but one aspect of the industry-wide **TREND** toward BETTER METHODS THAT COST LESS. The Kemp Atmos-Gas Producer is complete, compact, continuous, automatic; whether it be a 15,000 CFH unit, with electric refrigeration, such as the battery of three shown above, or a simple, water cooled 1,000 CFH machine. In providing Atmos-Gas for various treatments and materials in large and small scale operations, Kemp is setting up new lows in annealing costs. For details address The **C. M. Kemp Manufacturing Company, at 405 East Oliver Street, Baltimore, Maryland or at the Oliver Building, Pittsburgh, Pennsylvania.**

KEMP of BALTIMORE

Steel Companies' Losses

By JAMES A. ROWAN
News Editor, The Iron Age

the steel industry had promised to stop beating its employees could hardly have caused more consternation in the steel industry—and this goes for holders of SWOC union contracts as well as those without contracts.

Steel Industry Just Waiting

Consequently, during July and most of August the steel industry has been waiting for some development which would ease the load of high wages and low prices with which most steel producers feel themselves saddled.

Some steel executives in the Central area now express a belief that certain elements of the New Deal Government would like to knock the steel industry punch-drunk with the idea, eventually, of taking over and running the industry "for the good of the stockholders and for the good of the workers." This possibility is not so lightly discussed as heretofore. To some steel men, the loss of power to control wages means that the steel industry has already reached a degree of regimentation which is not yet fully understood by the public and much of the industry itself.

One steel executive said he believed that the country will receive its first dramatic warning that a new era has come for the steel industry when some medium-sized steel company is forced to close its doors to its thousands of employees because of political control of steel wages and prices. While acknowledging the need of Government regulation, he said he did not believe the steel industry can continue to run with two drivers. Either the politicians or the steel company manager must have full control of the wheel, he said.

A large steel fabricator said that he has already begun to negotiate a wage decrease with the SWOC and within the next few weeks expects to place a lower wage scale into effect, similar to that which has already been adopted by a few of the small steel companies.

Since late June some of the steel manufacturers who have written contracts with the SWOC have endeavored to place a realistic picture of their predicament before Philip Murray, chairman of that CIO affiliate, in the hope of lessening pressure from the union when announcement of lower wages is made.

Yet in the large steel centers, one hears less of the SWOC. At some plants, covered by union contracts, almost no meetings of union delegates and representatives are being held. One steel company official said that he was no longer concerned about the SWOC, that he would bargain collectively with his men, but that he was vitally concerned with what the Administration at Washington is doing.

All Eyes on Washington

The SWOC and the CIO are more of a sideshow than a main attraction

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WITH
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This special lapping practice is exclusive with Strom.

Physical soundness — correct hardness — size accuracy and sphericity are guaranteed in all Strom Balls.

Other types of balls — STAINLESS STEEL —MONEL—BRASS & BRONZE—are also available in all standard sizes. Write for full details.

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The largest independent and exclusive Metal Ball Manufacturer

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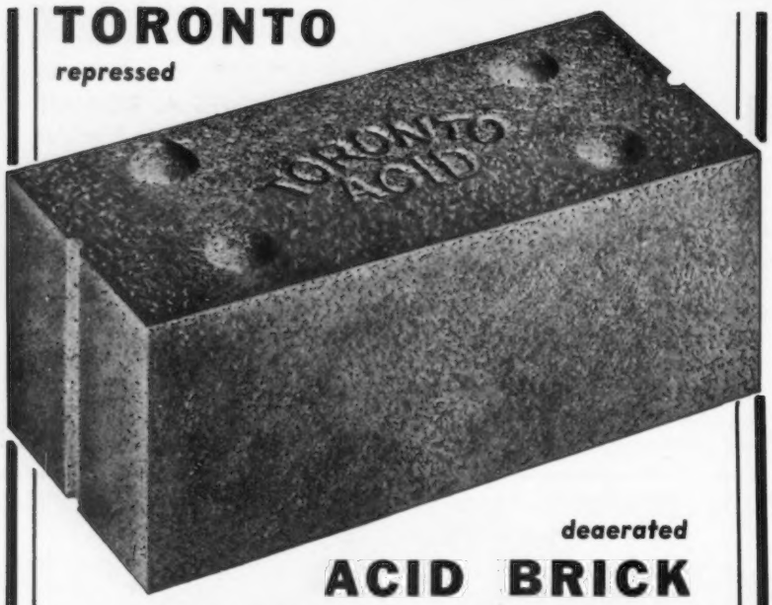

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FOR USE WITH BASOLIT

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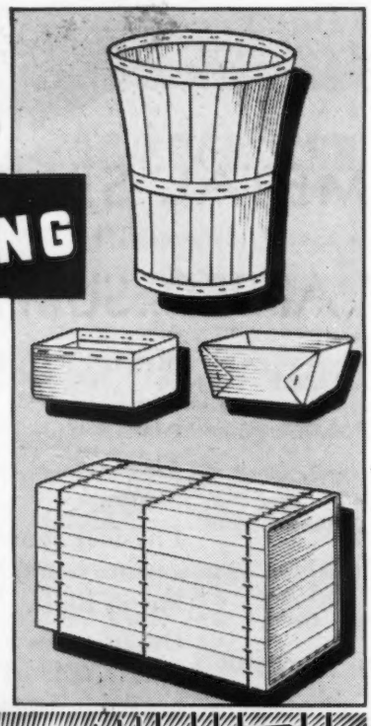
Fire Clay, Acid Resistant Brick, Fire Clay Mill Brick, Pickling Tank Linings, Acid Proof Construction, Paving Brick, Paving Block, Chimney Stack Brick.

Wire
BINDING STAPLING



For packaging purposes, both stapling and binding, Continental offers you the correct wire—available in a variety of gauges and tempers to suit any sort of job. Finished bright, bright annealed, black annealed, and galvanized. Stapling wire comes in 8, 12, and 16-inch coils; for binding, in coils of 16 and 22 inch diameter. We invite inquiries on any application of manufacturers wire.

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Wire: Bright Basic, Annealed, *Konik, Special Manufacturers, Galvanized, *Flame-Sealed
Wire Rods, Nails, Staples, Bale Ties, Barbed Wire; Fence—15 Types; Gates and Fittings
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at this time, he said. What the industry is interested in chiefly at this time is what is happening in the Main Tent, i. e., the White House. Of great interest, just now, among steel producers is the monopoly investigation in which steel, one of the largest industries, is expected to play a prominent part.

Recently spokesmen for the larger steel companies have said privately that nothing will be done on wages "at least until after Labor Day." Meanwhile effects of the recent changes in steel price basing points still are being weighed in the light of experience. Estimates of "who got the worst of it" in the basing point changes from the viewpoint of the steel companies apparently have been revised recently. However, 15 small producing and fabricating companies in unsuccessfully requesting that the Public Contracts Board reopen its minimum wage hearing for presentation of more evidence, cited the basing point revisions as a major reason why these companies could not withstand the fixing of minimum steel pay rate at higher than present levels. It is to the Contracts Board that the steel industry looks for the next move on steel wages.

G-E Will Equip Novel Subway Car

MOTORS and control, as well as auxiliary electrical equipment for the "featherweight" subway car to be placed in experimental service by the B.-M.T., in New York, will be furnished by the General Electric Co. The car will be streamlined and articulated, with four trucks supporting its three body sections, totaling 4 in. over 80 ft. in length. It will be designed and equipped throughout to operate at high speed with the minimum of noise. Eight G-E 1198, 300/600-volt motors will be used, with two floating control equipments employing the commutator-type controller, dynamic braking, and magnetic track brakes. The equipment will provide acceleration rates up to 4 mi. per hr. per sec., and dynamic braking up to the same value.

The featherweight car, a distinct departure from other types of subway and "L" equipment now in use, will be built of aluminum alloy, and equipped with rubber-cushioned wheels and springs. Non-glare, high-intensity lights will provide even, adequate lighting, and a constant forced circulation of filtered air will be maintained. Total carrying capacity will be 318 passengers.

British Steel Prices Not to Be Reduced

LONDON (*By Mail*)—The repeated rumors that British steel prices will shortly be reduced in order to attract new business are entirely without foundation. It can be authoritatively stated that there is no prospect of any revision in quotations during the life of the present agreement, under which prices are stabilized until the end of the year.

The last important revision of British steel prices took place on May 1, 1937, when quotations for main products were advanced by amounts varying from 17s.6d. to 37s.6d. ($4.37 to $9.37) a ton owing to the rise in the cost of raw materials. Made with the approval of the Import Duties Advisory Committee, the increases were to remain effective until the end of 1937. In November of that year the industry decided to maintain prices for the whole of 1938. This decision was made with the complete approval of the Import Duties Advisory Committee.

It is pointed out that, although current prices of raw materials are lower in some directions than last year, owing to the necessity for buying ahead for lengthy periods the industry is still paying at rates as high as in May, 1937, when steel prices were last amended.

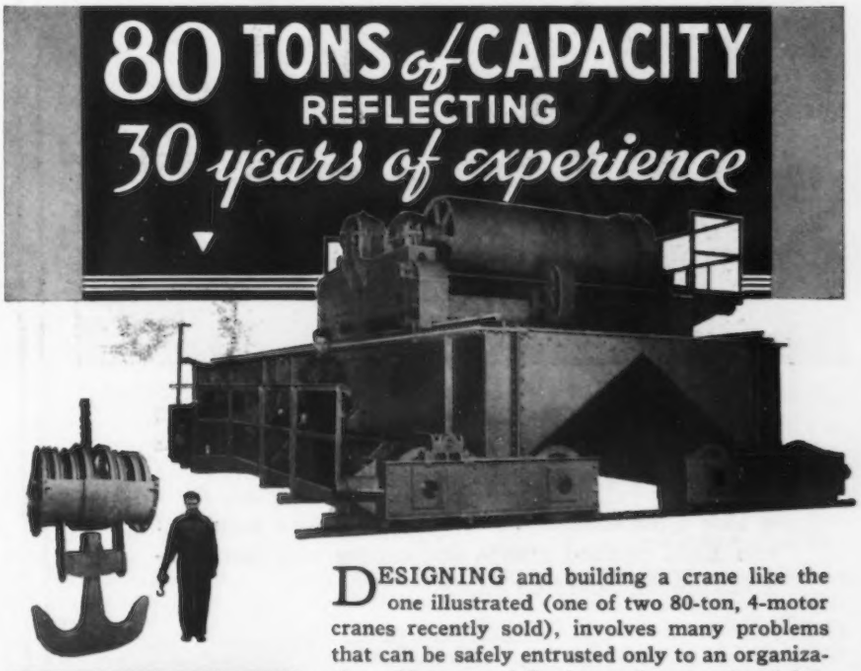
It is probable that some decision on price policy for 1939 will be decided upon late in the year and that an official announcement on next year's plans will be issued—probably in November. No reliable forecast as to the price changes then to be made can be given at this time. All that is known is that the industry's policy will be dictated by a review of the costs of raw materials which will be undertaken in conjunction with the Import Duties Advisory Committee before the end of the year.

Hot Dip Galvanizers Meet at Cleveland

CLEVELAND.—Coordination of the advertising campaign of the American Hot Dip Galvanizers' Association with sales programs was one of the principal topics at the association's semi-annual meeting Aug. 25 in Hotel Statler, Cleveland. Legislation requiring disposal of waste pickle liquors, and methods of disposing of the waste, were among other discussion topics. The board of directors met at the close of the meeting to decide matters of policy. Stuart J. Swenson is the association secretary.

Preparing for future spring business while we plan today's orders—Dunbar's policy of uninterrupted service to you. ***Dunbar career men train understudies in the established traditions of 92 years of quality spring manufacture.***

DUNBAR BROS. CO.
DIVISION OF ASSOCIATED SPRING CORPORATION
BRISTOL, CONNECTICUT



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Euclid's experience in crane design covers a third of a century, and we believe justifies your complete confidence.

Ask for catalog and tell us your crane problem. We will work with you.

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1361 Chardon Rd., Euclid, Ohio

Government Steel Contracts Decline for Second Week

WASHINGTON.—The Walsh-Healey Government Contracts Board reports contracts for iron and steel products, as listed by various government departments during the week ended Aug. 25, totaled $145,688.48, as compared with $282,800 the previous week and $773,173.64 two weeks ago.

Companies receiving the largest contracts included The Phoenix Iron Co., Phoenixville, Pa., $29,686.48, shapes for the Navy; Chicago Bridge & Iron Co., Birmingham, $24,845, storage tanks for the TVA; and Bethlehem Steel Co., Bethlehem, Pa., $21,933.83, steel bars for the Navy.

Contracts for the same period covering purchases classified as for "other machinery" amounted to $957,673 with the Worthington Pump & Machinery Corp., Harrison, N. J., receiving the largest, a $135,024 contract for pumping equipment for the Navy. The Shartle Brothers Machine Co., Division, Black-Clawson Co., Middletown, Ohio, was next with a $107,670 contract for Jordan engines for the Ordnance Division, War Department.

CLEVELAND TRAMRAIL

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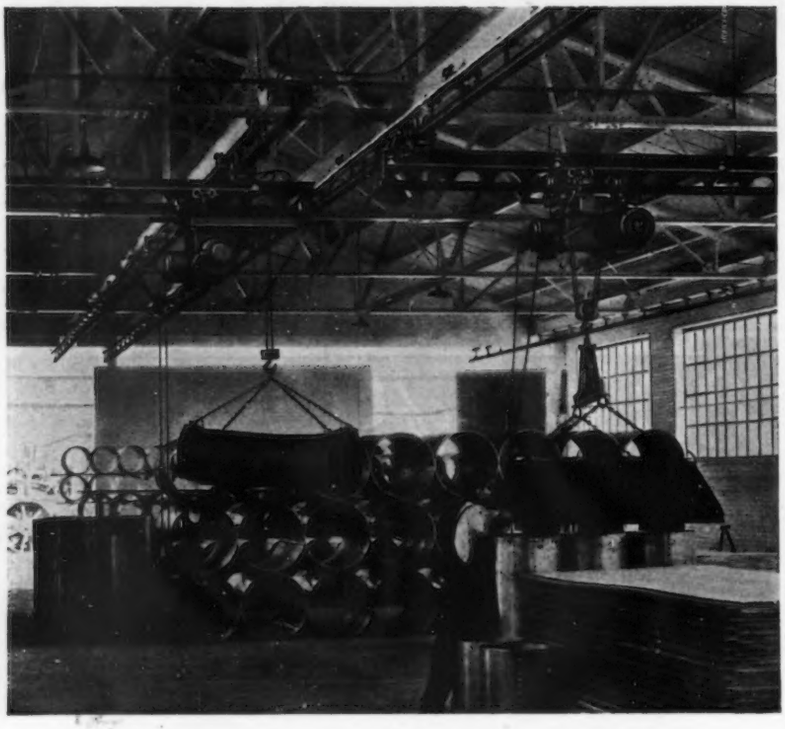

● In the metal working plant for storage or handling through the forming process, Cleveland Tramrail is serving efficiently.

● This equipment is rated at 2000 pound capacity: two hand pushed cranes and carrier with floor controlled motor operated hoists.

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Division of THE CLEVELAND CRANE & ENGINEERING CO.

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Or consult your phone directory under Cleveland Tramrail.

A.S.M.E. Plans Symposium On Rubber for Oct. 5

A SYMPOSIUM on rubber will be sponsored by the Committee on Rubber and Plastics at the fall meeting of the American Society of Mechanical Engineers, to be held at the Providence-Biltmore Hotel, Providence, Oct. 5. The papers to be presented at this meeting will emphasize mechanical problems in production and use of rubber. These are: Session 1—9 a. m., "The Engineering History of Rubber," by Dr. W. C. Geer, Ithaca, N. Y., and "Synthetic Substances with Rubber-like Properties," by E. R. Bridgwater, E. I. du Pont de Nemours & Co.

Session 2—2 p. m., "Problems in the Production of Rubber," by E. G. Kimmich, Goodyear Tire & Rubber Co., and "The Mechanical Characteristics of Rubber," by F. L. Haushalter, B. F. Goodrich Co.

The Committee on Rubber and Plastics will meet in the evening of Oct. 5 to discuss projects for 1939 and 1940. Technical representatives of companies engaged in either the production or use of rubber and plastics are invited to attend.

Weldrods Corp. to Spend $500,000 on Ohio Plant

CLEVELAND.—Weldrods Corp. has purchased five acres of land in Cuyahoga Heights where eventually it will spend $500,000 for buildings and equipment. The company expects to employ about 600 persons. A subsidiary of the Air Reduction Co. and the National Carbide Co., makers of oxy-acetylene gases, the firm will next month start building the first unit of a factory development which will include 30,000 sq. ft. of space and cost approximately $150,000.

Mott Plant To Be Sold At Auction on Sept. 21

THE plant, machinery and all other property owned by the J. L. Mott Corp., Lalor and Hancock Streets, Trenton, N. J., is to be sold at public auction Sept. 21. Included in the sale will be 14 buildings, with site, iron and brass foundries, and pattern and enameling shops, together with a diversity of equipment including cranes and tools.

FABRICATED STEEL

NORTH ATLANTIC STATES

AWARDS

1525 Tons, New York, garage and office building, Sheffield Farms Co., to Bethlehem Steel Co., Bethlehem, Pa.

1350 Tons, New Haven, Conn., Ferry Street bridge, to Harris Structural Steel Co., Plainfield, N. J. C. W. Blakeslee & Sons, Inc., New Haven contractors.

480 Tons, Ozone Park, N. Y., public school No. 64, to Lehigh Structural Steel Co., Allentown, Pa.

450 Tons, New York, addition to public school No. 139, to Drier Structural Steel Co., New York.

345 Tons, Elmira, N. Y., municipal stadium, to Bethlehem Steel Co.

339 Tons, New York, Firestone Tire & Rubber building at World's Fair, to Belmont Iron Works, Philadelphia.

330 Tons, Long Island City, N. Y., Borden Avenue grade separation, to Harris Structural Steel Co., Plainfield, N. J., through John Meehan & Son.

320 Tons, New York, Manhattan Bridge suspenders, to John A. Roebling's Sons Co., Philadelphia.

315 Tons, Broome County, N. Y., State highway bridge, to Lackawanna Steel Construction Co., Buffalo.

300 Tons, Long Island City, N. Y., industrial buildings, R. Steel & Sons, to Bethlehem Steel Co., Bethlehem, Pa.

270 Tons, Marcus Hook, Pa., supporting condensers and exchangers, Sun Oil Co., to Belmont Iron Works, Philadelphia.

250 Tons, Bath, N. Y., highway bridge, PWA project 1603-F, to Bethlehem Steel Co., Bethlehem, Pa.

250 Tons, Parlin, N. J., Hercules Powder Co. building extensions, to American Bridge Co., Pittsburgh.

145 Tons, Jersey City, N. J., Holy Rosary School, to Oltmer Iron Works, Jersey City; through D'Elia Building Co.

140 Tons, Rockaway Beach, N. Y., Shore Front Parkway curbs, to American Bridge Co., Pittsburgh.

140 Tons, Woodstock, Vt., bridge, to American Bridge Co., Pittsburgh.

140 Tons, Pittsburgh, north approach, Highland Park Bridge, to Bethlehem Steel Co., Bethlehem, Pa.

THE SOUTH

3025 Tons, Pensacola, Okla., Pensacola dam and power house, to Bethlehem Steel Co., Bethlehem, Pa.

225 Tons, Nashville, Tenn., U. S. Tobacco power house, to Nashville Bridge Co., Nashville, Tenn.

215 Tons, Karnes, Bee and Live Oak Counties, Tex., bridge, to Peden Iron & Steel Co., Houston, Tex.; W. W. Vann & Co., general contractor.

150 Tons, Webb County, Tex., bridge, to Alamo Iron Works, San Antonio, Tex.; H. B. Zachry general contractor.

130 Tons, Colorado County, Tex., bridge, to Virginia Bridge Co., Roanoke, Va.; R. B. Butler general contractor.

115 Tons, Richwood, W. Va., State road bridge, to Virginia Bridge Co., Roanoke, Va.

CENTRAL STATES

1500 Tons, Belleville, Del., hangar at Scott Field, to American Bridge Co., St. Louis.

1115 Tons, Bloomfield, Ind., Greene County bridge, to Vincennes Bridge Co., Vincennes, Ind.

265 Tons, Washington, Iowa, subway, to Bethlehem Steel Co., Bethlehem, Pa., through Massman Construction Co.

260 Tons, Griswold, Iowa, State bridge FAP-773, to Clinton Bridge Co., Clinton, Iowa.

250 Tons, Cleveland, laboratory for Case School of Applied Science, to Austin Co., Cleveland; Sam W. Emerson Co., Cleveland, general contractor.

170 Tons, Seneco, Ill., railroad bridge, to American Bridge Co., Pittsburgh.

150 Tons, Chippewa Falls, Wis., Central Street bridge, to Clinton Bridge Co., Clinton, Iowa.

130 Tons, Marseilles, Ill., four beam spans for Rock Island Railroad, to American Bridge Co., Pittsburgh.

115 Tons, Galesburg, Ill., factory building, to Joseph T. Ryerson & Son, Inc., Chicago.

102 Tons, Shelby County, Ohio, bridge, to Burger Iron Co., Akron, Ohio.

WESTERN STATES

3500 Tons, Fort Lewis, Wash., McChord Field hangars, to Bethlehem Steel Co., Seattle.

1600 Tons, Seattle, Naval hangars at Sands Point, to Bethlehem Steel Co., Seattle.

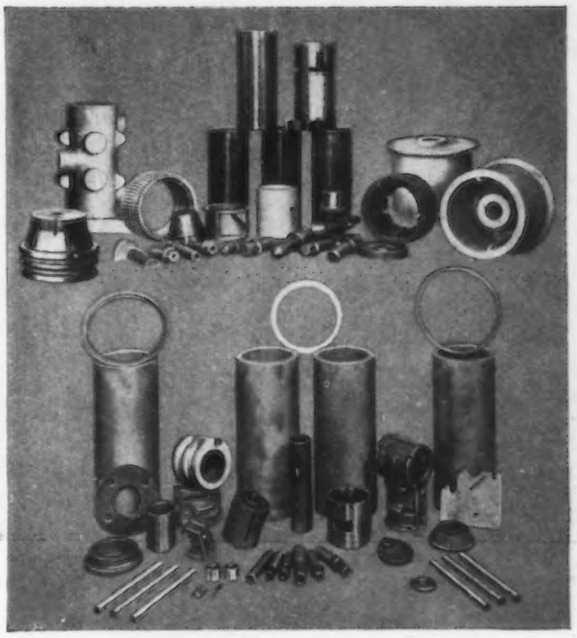
760 Tons, Culver City, Cal., improvements at M-G-M lot, as follows: 500 tons to Bethlehem Steel Co., Los Angeles; 260 tons to Minneapolis-Moline Power Implement Co., Minneapolis.

200 Tons, Plumas County, Cal., Wolf Creek bridge, to Bethlehem Steel Co., San Francisco.

161 Tons, Portland, Ore., Union Pacific warehouse, to Bethlehem Steel Co., Portland, Ore.

141 Tons, Bremerton, Wash., yard building 91 (PWA 97), to Milwaukee Bridge Co., Milwaukee.

Use the NEW ALLOY NITRI-CAST-IRON



Nitri-cast-iron, the new chromium-aluminum-molybdenum iron, has proved itself the modern answer to wear. It's unequalled, bar nothing, for hundreds of permanent mold, centrifugal, and sand castings. *Best* for long-run economy and performance. For full technical details on heat treating, machining, etc., write for free book.

MISCELLANEOUS NITRI-CAST-IRON CASTINGS

Metal Weaving Machine Cylinders; Automatic Sleeves and Piston Rings; Wet and Dry Fine Wire Drawing Heads; Pump Liners, Cylinders, Thrust Plates, Bodies, Bushings, and Rotors; Crank Shafts; Valve Guides; Glass Molds; Oil Well Slips; Wire Drawing Idlers; Textile Spinning Rings; Canning Machine Disks; Pneumatic Grinder Cylinders; Sleeve Bearings; Textile Wear Guides; Cams; Valves; Plungers; Wear Pads for Feed Fingers; Refrigerator Seal Rings.

NITRIDE-HARDENS TO 900/950 BRINELL!

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COMPOSITE STEEL DIES · TOOL STEEL CAST TO SHAPE
TOOL AND ALLOY STEEL FORGINGS · NITRI-CAST-IRON

135 **Tons,** East Helena, Mont., sinter crushing plant, American Smelting & Refining Co., to Minneapolis-Moline Power Implement Co., Minneapolis.

100 **Tons,** Auberry, Cal., highway bridge, to Bethlehem Steel Co., San Francisco.

NEW STRUCTURAL STEEL PROJECTS

NORTH ATLANTIC STATES

14,000 **Tons,** Brooklyn, superstructure, Meeker Avenue bridge.

5700 **Tons,** Brooklyn, subway, section 9, route 110; George H. Flinn Corp., New York, low bidder.

1000 **Tons,** Hoboken, N. J., viaduct, George M. Brewster & Son, Bogota, N. J., low bidders.

600 **Tons,** Washington, Calvin Coolidge High School.

450 **Tons,** Brooklyn, Red Hook housing development, New York Housing Authority.

300 **Tons,** Brooklyn, miscellaneous material for Williamsburg Bridge.

300 **Tons,** New York, World's Fair building for State of Missouri.

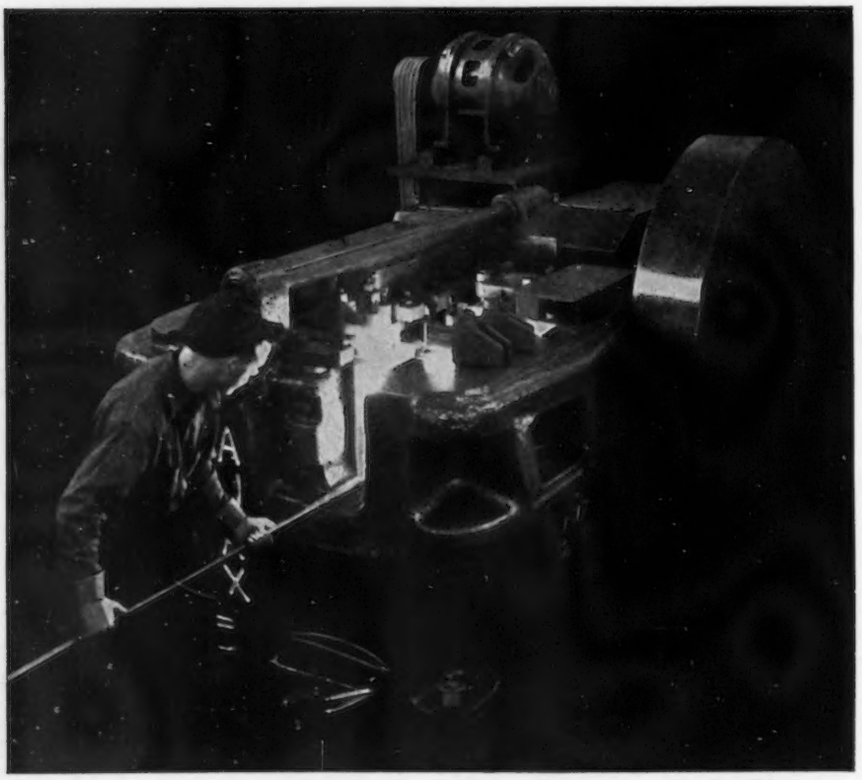
300 **Tons,** Long Island, N. Y., State hospital building.

300 **Tons,** Pittsburgh, Schiller School.

150 **Tons,** New York, World's Fair building, Standard Brands, Inc.

150 **Tons,** Bath, N. Y., bridge; bids due Sept. 13.

125 **Tons,** Ozone Park, N. Y., school building.



FOR EXACTING UPSET FORGING

● Ajax Air Clutch Forging Machines are particularly suitable for difficult upsetting and punching operations.

The excellent header slide and die slide alignment of Ajax machines, because of the extension guide bearings, and the great rigidity of frame, both longitudinal and transverse, provide the accuracy so essential, not only for sound stock-gathering operations, but also for piercing.

The operating convenience and the instantaneous response of the Ajax Air Clutch to tripping give speed which permits performing the maximum number of operations on the slender stock before it cools, eliminating or reducing re-heats and re-handlings resulting in maximum output.

Write for our Bulletin No. 65-A.

THE AJAX MANUFACTURING COMPANY
EUCLID BRANCH P. O. CLEVELAND
621 MARQUETTE BLDG., CHICAGO • 201 DEWART BLDG., NEW LONDON

AJAX

125 **Tons,** Baltimore, American Zirconium weak acid recovery plant.

125 **Tons,** Green Springs Valley, Md., residence, C. W. Wheelwright.

100 **Tons,** Palmer, Mass., bridge. C. I. Hosmer, Inc., Greenfield, Mass., contractor.

SOUTH and SOUTHWEST

900 **Tons,** Chickamauga Dam, Tenn., power house superstructure for TVA.

250 **Tons,** Letcher County, Ky., State bridge over Kentucky River.

100 **Tons,** Torrance, N. M., overpass (FAGS 222-1); Brown Brothers, Albuquerque, N. M., general contractors.

CENTRAL STATES

825 **Tons,** Cedar Rapids, Iowa, State bridge FN-96.

520 **Tons,** Springfield, Mo., health and recreation building, Southwestern Missouri State Teachers College.

480 **Tons,** Keosauqua, Iowa, State bridge FAP-165.

365 **Tons,** State of Wisconsin, four bridges; bids Sept. 13.

350 **Tons,** Belleville, Ill., two warehouses at Scott Field; bids taken Aug. 31.

250 **Tons,** Kankakee, Ill., addition, Bear Brand Hosiery Co.; bids Sept. 1.

235 **Tons,** Rantoul, Ill., two warehouses, Chanute Field.

175 **Tons,** Omaha, Neb., bridge 353.34, Union Pacific Railroad.

130 **Tons,** Mackinaw City, Mich., addition to State ferry pier.

WESTERN STATES

15,000 **Tons,** Oregon and Washington, 1353 transmission line towers to connect Bonneville and Grand Coulee dams; bids Sept. 19.

3500 **Tons,** Oregon and Washington, 356 transmission line towers to connect Bonneville Dam and Vancouver, Wash.

600 **Tons,** Los Angeles, railroad bridge over Santa Ana River.

360 **Tons,** San Pedro, Cal., hangar extension.

137 **Tons,** Los Angeles, Prado Dam (revised tonnage); bids Sept. 19.

FABRICATED PLATES

AWARDS

3000 **Tons,** Grand Coulee Dam, Wash., conduit linings (Specifications 789), to Puget Sound Machinery Depot, Seattle.

469 **Tons,** Philadelphia, Pa., three tanks for Standard Oil of New Jersey, to an unnamed fabricator.

421 **Tons,** New York, Jerome Avenue water main, to Alco Products Co., Dunkirk, N. Y.; Linn Avenue Construction Co., general contractor.

400 **Tons,** Portland, Ore., two 110-ft. Coast Guard tenders, to Commercial Iron Works, Portland, Ore.

120 **Tons,** Seattle, Wash., penstocks for Ruby Dam, to Commercial Boiler Works, Seattle.

SHEET PILING

AWARDS

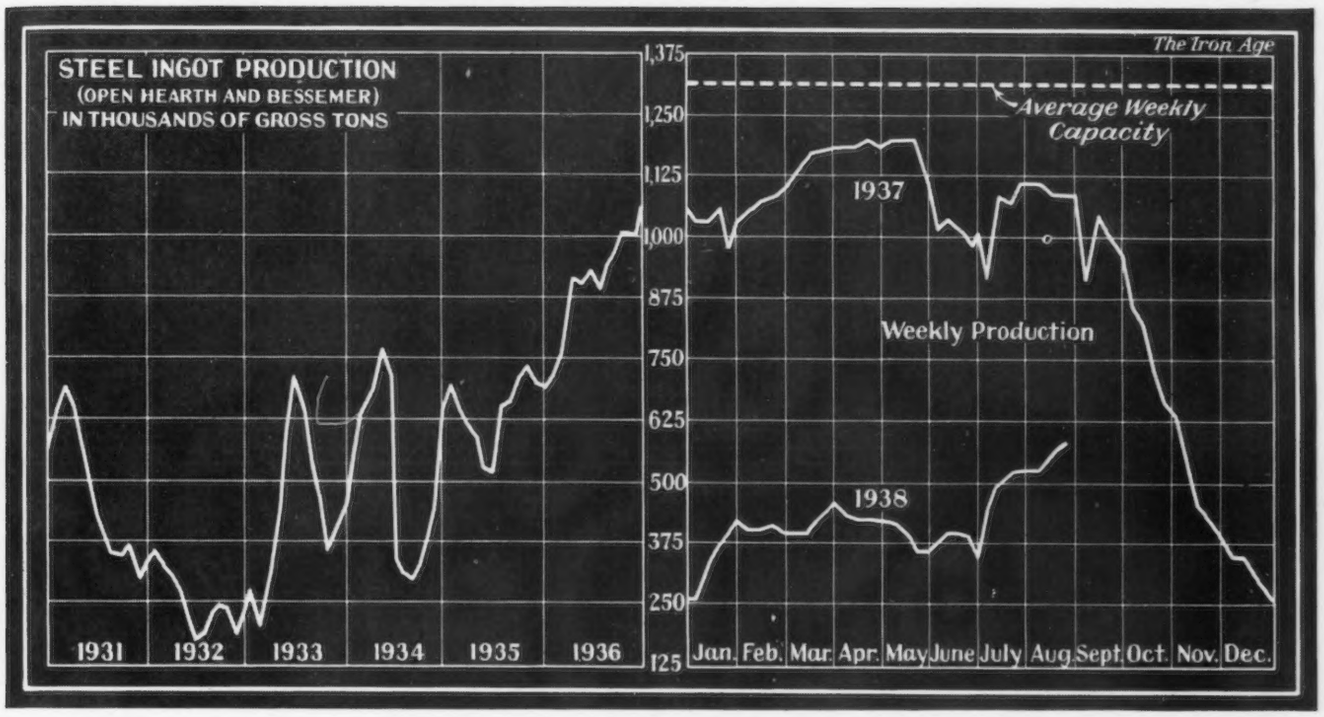
500 **Tons,** Cleveland Coast Guard station improvements, to Bethlehem Steel Co., Bethlehem, Pa., through American Construction Co., Cleveland.

NEW PROJECTS

2495 **Tons,** San Francisco and Honolulu, United States Engineer proposal 14-39-11; bids Sept. 6.

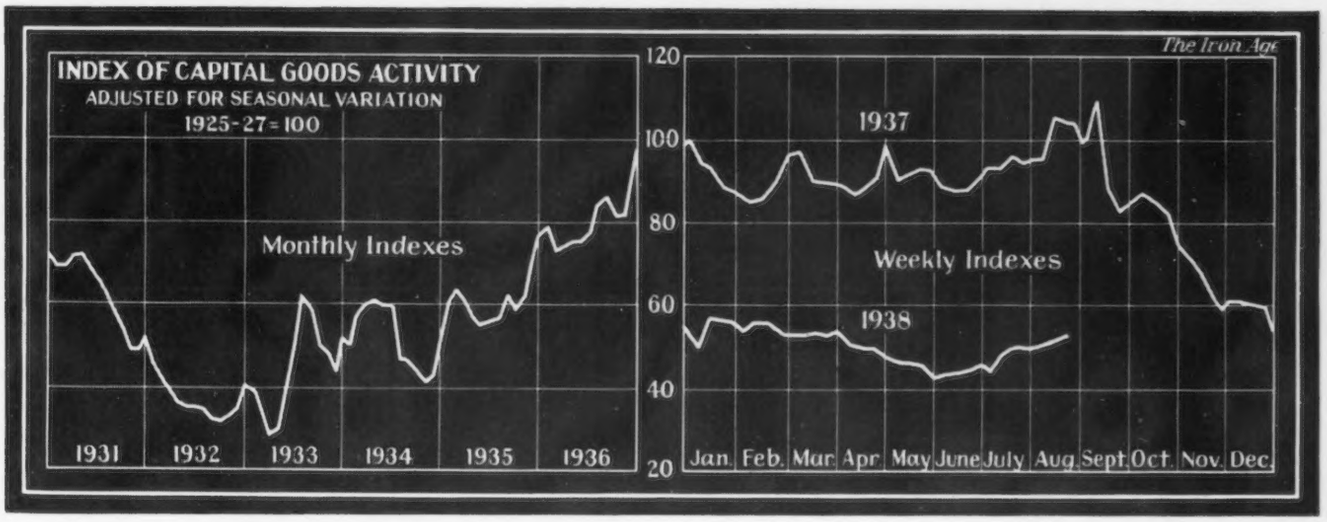
1185 **Tons,** Los Angeles, Prado Dam; bids Sept. 19.

Ingot Rate Rises One Point to 44 Per Cent



District Ingot Production, Per Cent of Capacity		Pitts-burgh	Chicago	Valleys	Phila-delphia	Cleve-land	Wheel-ing	Buffalo	Detroit	Southern	S. Ohio River	Western	St. Louis	East-ern	Aggre-gate
	CURRENT WEEK...	33.0	40.0	44.0	27.0	47.0	70.0	46.5	51.8	40.4	54.0	40.0	45.5	50.0	**44.0**
	PREVIOUS WEEK..	33.0	38.0	43.0	27.0	45.0	79.0	46.5	43.0	43.5	54.0	40.0	37.5	50.0	**43.0**

Decline in Automobile Assemblies Levels Off Index



A DECLINE in automobile assemblies from 23,940 units to 18,700 was responsible for a leveling off of THE IRON AGE capital goods index for the week ended Aug. 27. This flattening out of the curve, which followed a substantial rise in the preceding week, places the combined index at 54.5, as against 54.0 in the previous week. Excepting the automobile series, all the components of the index were higher, with the steel production series showing the heaviest advance. The week's gain in the construction series was particularly noteworthy, as it raised the adjusted index of this factor above the level of a comparable week in 1937, for the first time this year.

	Week Ended Aug. 27	Week Ended Aug. 20	Comparable Week 1937	Comparable Week 1929
Steel ingot production[1]	62.3	58.3	121.3	124.0
Automobile production[2]	35.6	40.0	158.2	120.0
Construction contracts[3]	67.9	66.3	66.8	109.8
Forest products carloadings[4]	53.5	53.2	73.7	120.8
Production and shipments, Pittsburgh District[5]	53.2	52.0	101.2	125.8
Combined index	**54.5**	**54.0**	**104.2**	**120.1**

Sources: 1. THE IRON AGE; 2. Ward's Automotive Reports; 3. *Engineering News-Record*; 4. Association of American Railroads; 5. University of Pittsburgh.

. . . .SUMMARY OF THE WEEK. . . .

. . . Ingot production rises to 44 per cent; business much better in August.

° ° °

. . . Industry still perplexed over question of wages.

° ° °

. . . Southern furnaces reaffirm pig iron prices for fourth quarter.

STEEL ingot production starts in September at 44 per cent of capacity, a gain of one point over last week, but may suffer a slight setback next week owing to the shutting down of some steel making departments on Labor Day.

Raw steel output probably averaged about 42 per cent in August against reported production of 33.42 per cent in July, a gain of approximately 25 per cent. Bookings of steel in August gained from 10 to 25 per cent over those of July, depending upon the company and the product. Thus it appears that a moderate proportion of recent gains in production has been brought about by the building up of semi-finished steel inventories in anticipation of further improvement. For example, some mills are trying to keep a little ahead of actual demand in stocks of slabs and sheet bars so that anticipated requirements of the automobile industry can be rolled quickly.

The Chicago district has attained a rate of 40 per cent, highest of the year thus far, while Pittsburgh operations remain at 33 per cent. There have been small gains at Cleveland, Youngstown and Detroit, but the South has declined slightly and the Wheeling-Weirton district has dropped from 79 to 70 per cent.

Pig iron production figures for August, to be reported next week, will undoubtedly show a fair gain over July. A Sloss-Sheffield furnace, which is scheduled to go into blast on Sept. 1, will be the fourth stack to be placed in service in the South within the past two weeks. Southern furnaces have reaffirmed present pig iron prices for the fourth quarter.

THE improvement in steel business and production during July and August has come about in the face of one of the most perplexing situations the steel industry has faced in many years. Not since the post-war adjustments of 1919, with the possible exception of the elimination of Pittsburgh-plus method of quoting prices in 1924, has the hand of the Federal Government been so plainly evident in matters affecting decisions of steel company managements. Decisions regarding wages are apparently being withheld pending announcement by the Public Contracts Board of the Department of Labor of minimum wage rates for steel plants doing Government work, which is expected within two weeks. Washington opinion is that there will be a "freezing" of present rates, preserving the differentials that exist between various districts. Under such a ruling, any steel company undertaking to cut wages would automatically bar itself from bidding on Government steel requirements.

There are no definite indications that any important steel company will initiate a wage cut at this time, nor is there any likelihood of higher prices that could be realized over the remainder of this year. Thus the main hope of steel companies is for sufficient improvement in business to lift production above the break-even point. One or two companies have attained this position, but most producers are continuing to pile up losses.

SEPT. 1 marks the beginning of large scale production of new models by the automobile industry. Buick's schedule has been announced as 55,000 cars by the end of November. This company has placed orders for 13,000 tons of sheets, strip and bars, bringing its total commitments for the next 90 days to 35,000 tons. A rising automobile market this fall is predicted by some automobile sales managers who point to the reduction of field inventories to the lowest total in two years.

BUILDING construction activities are absorbing a large share of steel companies' attention. New projects on which bids have been requested total more than 41,000 tons, of which 18,500 tons is for transmission towers in Oregon and Washington to connect the Grand Coulee and Bonneville Dams. The Meeker Street Bridge in Brooklyn calls for 14,000 tons. Structural steel lettings were nearly 22,000 tons, including 3500 tons for airplane hangars at Fort Lewis, Wash.; 3025 tons for a dam at Pensacola, Okla.; 1525 tons for an office building and garage for the Sheffield Farms Co., New York; 1350 tons for a bridge at New Haven, Conn., and 1100 tons for a bridge in Indiana. Awards of reinforcing bars were about 13,500 tons, of which 5000 tons is for the Red Hook housing project in Queens, N. Y. Conduit linings for the Grand Coulee Dam take 3000 tons of plates. Dump scows for New York City, tentatively awarded, will require 9000 tons of plates.

Some rail buying by the railroads is expected before the end of the year, though equipment purchases are still in doubt. The New York Central will issue an inquiry for 28,600 tons of rails about Sept. 15.

Tin plate buying is at a low ebb and operations are down to about 30 per cent. No improvement is looked for until a new price has been announced, possibly in October.

Scrap markets are in a waiting position. THE IRON AGE scrap composite price is unchanged at $14.50.

A Comparison of Prices

Market Prices at Date, and One Week, One Month, and One Year Previous
Advances Over Past Week in Heavy Type, Declines in Italics

Rails and Semi-finished Steel

Per Gross Ton:	Aug. 30, 1938	Aug. 23, 1938	Aug. 2, 1938	Aug. 31, *1937
Rails, heavy, at mill	$42.50	$42.50	$42.50	$42.50
Light rails: Pittsburgh, Chicago, Birmingham	40.00	40.00	40.00	43.00
Rerolling billets: Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham, Sparrows Point	34.00	34.00	34.00	37.00
Sheet bars: Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point	34.00	34.00	34.00	37.00
Slabs: Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham, Sparrows Point	34.00	34.00	34.00	37.00
Forging billets: Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham	40.00	40.00	40.00	43.00
Wire rods: Nos. 4 and 5, Pittsburgh, Chicago, Cleveland	43.00	43.00	43.00	47.00
Skelp, grvd. steel: Pittsburgh, Chicago, Youngstown, Coatesville, Sparrows Point, cents per lb.	1.90	1.90	1.90	2.10

*Pittsburgh prices only.

Finished Steel

Cents per Lb.:	Aug. 30, 1938	Aug. 23, 1938	Aug. 2, 1938	Aug. 31, *1937
Bars: Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham	2.25	2.25	2.25	2.45
Plates: Pittsburgh, Chicago, Gary, Birmingham, Sparrows Point, Cleveland, Youngstown, Coatesville, Claymont	2.10	2.10	2.10	2.25
Structural shapes: Pittsburgh, Chicago, Gary, Buffalo, Bethlehem, Birmingham	2.10	2.10	2.10	2.25
Cold finished bars: Pittsburgh, Buffalo, Cleveland, Chicago, Gary	2.70	2.70	2.70	2.90
Hot rolled strip: Pittsburgh, Chicago, Gary, Cleveland, Middletown, Youngstown, Birmingham	2.15	2.15	2.15	2.40
Cold rolled strip: Pittsburgh, Cleveland, Youngstown	2.95	2.95	2.95	3.20
Sheets, galv., No. 24: Pittsburgh, Gary, Sparrows Point, Buffalo, Middletown, Youngstown, Birmingham	3.50	3.50	3.50	3.80
Hot rolled sheets: Pittsburgh, Gary, Birmingham, Buffalo, Sparrows Point, Cleveland, Youngstown, Middletown	2.15	2.15	2.15	....
Cold rolled sheets: Pittsburgh, Gary, Buffalo, Youngstown, Cleveland, Middletown	3.20	3.20	3.20	....

Cents per Lb.:	Aug. 30, 1938	Aug. 23, 1938	Aug. 2, 1938	Aug. 31, *1937
Wire nails: Pittsburgh, Chicago, Cleveland, Birmingham	2.45	2.45	2.45	2.75
Plain wire: Pittsburgh, Chicago, Cleveland, Birmingham	2.60	2.60	2.60	2.90
Barbed wire, galv., Pittsburgh, Chicago, Cleveland, Birmingham	3.20	3.20	3.20	3.40
Tin plate, 100-lb. base box: Pittsburgh and Gary	$5.35	$5.35	$5.35	$5.35

*Pittsburgh prices only.

Pig Iron

Per Gross Ton:	Aug. 30, 1938	Aug. 23, 1938	Aug. 2, 1938	Aug. 31, *1937
No. 2 fdy., Philadelphia	$21.84	$21.84	$21.84	$25.76
No. 2, Valley furnace	20.00	20.00	20.00	24.00
No. 2, Southern Cin'ti	20.06	20.06	20.06	23.69
No. 2, Birmingham	16.38	16.38	16.38	20.38
No. 2 foundry, Chicago†	20.00	20.00	20.00	24.00
Basic, del'd eastern Pa.	21.34	21.34	21.34	25.26
Basic, Valley furnace	19.50	19.50	19.50	23.50
Malleable, Chicago†	20.00	20.00	20.00	24.00
Malleable, Valley	20.00	20.00	20.00	24.00
L. S. charcoal, Chicago	28.34	28.34	28.34	30.04
Ferromanganese, seab'd, carlots	92.50	92.50	92.50	102.50

†The switching charge for delivery to foundries in the Chicago district is 60c. per ton.

Scrap

Per Gross Ton:	Aug. 30, 1938	Aug. 23, 1938	Aug. 2, 1938	Aug. 31, *1937
Heavy melting steel, P'gh.	$15.50	$15.50	$15.50	$21.75
Heavy melting steel, Phila.	14.25	14.25	14.25	19.75
Heavy melting steel, Ch'go	13.75	13.75	13.25	19.00
Carwheels, Chicago	14.25	14.75	14.75	19.75
Carwheels, Philadelphia	17.25	17.25	16.75	20.75
No. 1 cast, Pittsburgh	15.25	15.25	15.25	20.25
No. 1 cast, Philadelphia	16.25	16.25	16.25	21.25
No. 1 cast, Ch'go (net ton)	13.25	13.25	13.25	15.75
No. 1 RR. wrot., Phila.	15.25	15.25	15.25	20.75

Coke, Connellsville

Per Net Ton at Oven:	Aug. 30, 1938	Aug. 23, 1938	Aug. 2, 1938	Aug. 31, *1937
Furnace coke, prompt	$3.75	$3.75	$3.75	$4.35
Foundry coke, prompt	4.75	4.75	4.75	5.00

Non-Ferrous Metals

Per Lb. to Large Buyers:	Aug. 30, 1938 Cents	Aug. 23, 1938 Cents	Aug. 2, 1938 Cents	Aug. 31, *1937 Cents
Electrolytic copper, Conn.	10.125	10.125	10.125	14.00
Lake copper, New York	10.25	10.25	10.25	14.12½
Tin (Straits), New York	43.30	42.875	43.70	58.75
Zinc, East St. Louis	4.75	4.75	4.75	7.25
Zinc, New York	5.14	5.14	5.14	7.60
Lead, St. Louis	4.75	4.75	4.75	6.35
Lead, New York	4.90	4.90	4.90	6.50
Antimony (Asiatic), N. Y.	14.00	14.00	14.00	17.00

On export business there are frequent variations from the above prices. Also in domestic business, there is at times a range of prices on various products, as shown in our detailed price tables.

The Iron Age Composite Prices

	Finished Steel	Pig Iron	Steel Scrap
August 30, 1938	2.300c. a Lb.	$19.61 a Gross Ton	$14.50 a Gross Ton
One week ago	2.300c.	19.61	14.50
One month ago	2.300c.	19.61	14.33
One year ago	2.512c.	23.25	20.17

Based on steel bars, beams, tank plates, wire, rails, black pipe, sheets and hot-rolled strip. These products represent 85 per cent of the United States output.

Based on average basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Southern iron at Cincinnati.

Based on No. 1 heavy melting steel quotations at Pittsburgh, Philadelphia and Chicago.

	Finished Steel HIGH	Finished Steel LOW	Pig Iron HIGH	Pig Iron LOW	Steel Scrap HIGH	Steel Scrap LOW
1938	2.512c., May 17	2.300c., July 6	$23.25, June 21	$19.61, July 6	$14.83, Aug. 9	$11.00, June 7
1937	2.512c., Mar. 9	2.249c., Jan. 4	23.25, Mar. 9	20.25, Feb. 16	21.92, Mar. 30	12.92, Nov. 16
1936	2.249c., Dec. 28	2.016c., Mar. 10	19.73, Nov. 24	18.73, Aug. 11	17.75, Dec. 21	12.67, June 9
1935	2.062c., Oct. 1	2.056c., Jan. 8	18.84, Nov. 5	17.83, May 14	13.42, Dec. 10	10.33, Apr. 23
1934	2.118c., Apr. 24	1.945c., Jan. 2	17.90, May 1	16.90, Jan. 27	13.00, Mar. 13	9.50, Sept. 25
1933	1.953c., Oct. 3	1.792c., May 2	16.90, Dec. 5	13.56, Jan. 3	12.25, Aug. 8	6.75, Jan. 3
1932	1.915c., Sept. 6	1.870c., Mar. 15	14.81, Jan. 5	13.56, Dec. 6	8.50, Jan. 12	6.43, July 5
1931	1.981c., Jan. 13	1.883c., Dec. 29	15.90, Jan. 6	14.79, Dec. 15	11.33, Jan. 6	8.50, Dec. 29
1930	2.192c., Jan. 7	1.962c., Dec. 9	18.21, Jan. 7	15.90, Dec. 16	15.00, Feb. 18	11.25, Dec. 9
1929	2.223c., Apr. 2	2.192c., Oct. 29	18.71, May 14	18.21, Dec. 17	17.58, Jan. 29	14.08, Dec. 3
1928	2.192c., Dec. 11	2.142c., July 10	18.59, Nov. 27	17.04, July 24	16.50, Dec. 31	13.08, July 2
1927	2.402c., Jan. 4	2.212c., Nov. 1	19.71, Jan. 4	17.54, Nov. 1	15.25, Jan. 17	13.08, Nov. 22

. . . PITTSBURGH . . .

. . . Ingot output unchanged in Pittsburgh district, but is nine points lower in Wheeling-Weirton district . . . August bookings about 10% over those of July . . . Nothing definite about fourth quarter prices.

PITTSBURGH, Aug. 30.—Steel bookings in the past week were in better volume than in the preceding period, with gains being registered in semi-finished steel, structural and wire products. Flat rolled demand is slowly recovering some of the loss experienced a few weeks ago when price irregularities broke out. Some recession in new business is anticipated next week owing to holiday influences, but producers expect market conditions during the next few weeks to disclose more definite possibilities of a moderate fall improvement. Although final figures are not in for August bookings, they will probably run about 10 per cent ahead of July business, the gap having been closed recently because fairly heavy commitments were made during the last week of July.

No intimation on fourth quarter prices has been given by any producer but some action is expected within the next few weeks. Recently announced prices on lap weld oil country casing reflect about a 10 per cent spread between this grade and seamless tubing, which is a greater difference on some items than was the case prior to July 1.

Ingot output in the Pittsburgh district is unchanged this week at 33 per cent of capacity, but the Wheeling-Weirton district has dropped nine points to 70 per cent, due in part to taking off a bessemer converter. Steel mill operation will probably level off next week as quite a few mills will be down over Labor Day.

No. 1 heavy melting steel is unchanged at $15.25 to $15.75.

Pig Iron

Orders and shipments were in better volume in August than in July. Production did not show the same increase, as many producers had built up moderate sized inventories. from which orders were filled. Hand-to-mouth buying continues and is sensitive to general business conditions.

Semi-Finished Steel

Weekly tonnages for the past several weeks have either improved or held their own and current bookings continue to reflect this situation. The expanded demand has been noted in the sheet bars and rods, while recently orders for rerolling billets have shown signs of life.

Bars, Plates and Shapes

No increase in hot rolled bar bookings occurred in the past week but total orders were equally as numerous as the preceding period. Led by publicly financed projects, structural inquiries and awards have expanded some but individual tonnages are not exceptionally large. Fabricated prices continue soft.

Reinforcing Bars

Mill specifications are quite heavy and producers anticipate a considerable amount of business during the remainder of the year, to be supported almost entirely by public financed projects. Awards and new projects were fairly numerous in the past week with no outstanding tonnages reported.

Wire

Helped to some extent by automobile parts makers and a preseasonal increase in merchant wire demand, sales of wire products increased somewhat in August from the July total. Further expansion in demand is anticipated this month.

Tin Plate

Governed entirely by irregular and spotty demand, tin plate operations have receded this week to approximately 30 per cent. No significant change in market conditions is expected until tin plate prices have been announced. This action is not expected for at least a month.

Sheets and Strip

Sheet tonnages in the past week were slightly larger than in the previous week with no one consuming source outstanding. August bookings ran ahead of July and prospects are bright for further expansion in demand in September.

Tubular Goods

Aggregate pipe business in August was slightly ahead of that booked in July. Oil-country goods specifications, if anything, have leveled off slightly but no sharp drop in demand is anticipated.

Weekly Booking of Construction Steel

	Week-Ended				Year to Date	
	Aug. 30, 1938	Aug. 23, 1938	Aug. 2, 1938	Aug. 31, 1937	1938	1937
Fabricated structural steel awards.....	21,600	33,600	28,120	6,515	492,320	790,665
Fabricated plate awards	4,410	1,500	1,040	2,275	95,330	87,510
Steel sheet piling awards	500	150	0	0	30,910	36,120
Reinforcing bar awards	5,525	15,650	2,800	3,170	198,785	193,175
Total Letting of Construction Steel	32,035	50,900	31,960	11,960	817,345	1,107,470

. . . . CHICAGO . . . .

. . . Ingot rate rises to 40%, highest of year thus far . . . August business has shown considerable improvement over July's . . . No change in steel prices expected for fourth quarter.

CHICAGO, Aug. 30.—The high of the year in operations was attained this week when a two-point rise brought the ingot producing rate to 40 per cent of capacity. Twelve blast furnaces are operating, unchanged from last week.

August has shown considerable improvement over July, the betterment ranging from 10 and 15 per cent or more. Miscellaneous purchasing, coupled with a slight upturn in automotive interest and the construction industries, is mainly responsible for the increase. Farm equipment plants are not yet operating well and the only railroad buying of importance in sight is the Illinois Central proposal for 1000 box cars. Some rails may be placed before the end of the year, however, as it is understood that several roads are considering entering this market. Tonnage received here from automobile plants is improving gradually and slowly.

Fourth quarter price announcements are expected by the end of this week or next week, and it is generally believed that a reaffirmation will be announced. Though some companies can stay out of the red at present operating rates, it is doubtful if the entire industry is so fortunate. If third quarter earnings statements are poor, the agitation for higher prices or lower wages will be given added strength. On the other hand, many buyers feel that prices would already have been raised were such action contemplated.

Pig Iron

August shipments will probably run about 45 per cent ahead of those of July with foundry coke up around 33 per cent. Present indications point to a further increase in September over August.

Sheets and Strip

Although automobile releases are being received steadily, tonnages are not yet in important proportions. Sellers are pinning their hopes on a revival of activity in all lines soon after Labor Day. Demand from jobbers is unchanged and buying from makers of farm equipment continues light.

Structural Shapes, Plates and Reinforcing Steel

Construction steel is fairly active with most of the tonnage being accounted for by small projects. Of interest are the awards of 1166 tons to Vincennes Bridge Co. for a railroad bridge in Indiana, and 1425 tons to American Bridge for a Scott Field, Ill., hangar. Plate sellers are watching closely the action which may be taken by the Illinois Central on 1000 box cars. Reinforcing quotations remain spotty but gradually seem to be firming.

Wire and Wire Products

Gradual improvement is reported both in merchant trade and manufacturing products. A spurt in merchant products demand is looked for about Sept. 15, at which time industrial buying should have reached the point where a pick-up will be noticeable there as well. The market seems firmer all around, including the secondary.

. . . . NEW YORK. . . .

. . . August sales considerably better than those of July . . . New York Central rail inquiry expected about Sept. 15.

NEW YORK, Aug. 30.—New York sales offices of steel companies report a fairly substantial gain in volume over July. Prospects for September are held to be fairly encouraging. The past week showed no gain over the preceding week. It would appear that some buyers are waiting until after Labor Day to see what happens.

The New York Central is expected to issue an inquiry for 28,600 tons of rails about Sept. 15.

Pig Iron

New business booked in the past week was extremely light and was comparable, on a tonnage basis, to the dull period experienced early this summer. This inactivity is credited generally to the approaching holiday, as many plants are planning to close for the entire week. The volume of orders placed in August was slightly below the July total, while shipments showed a moderate gain in August over the preceding month. Most of the buying at present is for prompt carlots, although there has been some quiet contracting done by several large consumers over the past three weeks. There is some export inquiry out from the Continent, but none of the inquiries goes over 300 tons.

Plates and Sheets

Plate sales in the past week showed no deviation from the low level of the past several weeks. Although prospects for the future are fairly encouraging, the only consumers particularly active at present are the tank builders, who are seasonally busy constructing oil tanks for domestic use. No formal action has been taken as yet on the 30 scows that are to be built for the New York City Department of Sanitation, but it is understood that three bidders may be awarded 10 each.

The volume of sheet business from manufacturing and jobbing sources continues in fair volume. Bookings in August were about 10 per cent ahead of July's.

Reinforcing Bars

Both awards and inquiries showed a slight slackening off in the past week, but are still in good volume when compared with a month ago. Prices continue to give evidence of sharp competition, especially on large tonnages, although of late it has also become evident on small lots. Public financed projects still dominate the construction field, but there has been a noticeable increase in the activity of private sources in connection with building alterations and repairs.

....BUFFALO....

. . . Operations expected to be slightly higher this week.

BUFFALO, Aug. 30.—Operations are the same as last week, 46½ per cent. Within the next few days, however, Bethlehem's Lackawanna plant expects to start up another furnace.

An award of 175 tons of steel for a bathhouse at Beaver Park, Grand Island, was made to the Ernst Iron Works, Buffalo.

Bethlehem Steel Co. was awarded the contract for the Municipal Stadium at Elmira, N. Y. This job will require 235 tons of shapes.

Bids for the bridge at Bath, N. Y., requiring 150 tons of shapes, are due Sept. 13.

..GREAT BRITAIN..

. . . Business outlook in England obscure . . . Many steel furnaces idle.

LONDON, Aug 30 (*By Cable*).—Continued political tension is adversely affecting the Continental steel market. Export buyers particularly are holding off. There are few signs of a revival of big demand in the near future, and American competition is still keen, especially in the Far East.

In England the outlook is very obscure. Northeast Coast outputs are now barely 60 per cent of the peak of March last year, and it is the largest of any area.

Pig iron stocks are being absorbed very slowly but are still very heavy. Producers are now hoping that consumers will return, as it has been announced that there will be no reductions in home prices for the remainder of this year.

There is no improvement in the steel market. Many steel furnaces are idle, as home export demand for heavy steel, apart from Government work, is still slack.

The Peninsular Orient Shipping Line is postponing the construction of two 25,000-ton liners for Canadian-Australian service owing to high costs of production.

Tin plate business is still quiet except in stock plate. Prices are generally considered too high, but no material fall is likely, as British tin plate bars are not to be reduced this year. Unfilled orders amount to about 2,250,000 base boxes.

There is no improvement in the market for black and galvanized sheets.

..SAN FRANCISCO..

. . . Transmission lines to connect dams will take 18,500 tons of steel.

SAN FRANCISCO, Aug. 29.—Transmission lines from Bonneville Dam, Ore., to Grand Coulee Dam, Wash., and to Vancouver Wash., brought approximately 18,500 tons of fabricated steel into the market this week. The Grand Coulee line will require 1353 towers, nearly half of them 70 ft. tall; the remaining towers in this line are from 42 to 62 ft. tall. The Vancouver line involves 356 towers. Bids for both groups of towers will be opened Sept. 19 by J. D. Ross, administrator of the Bonneville project, Failing Building, Portland, Ore.

An important factor in the construction of the towers is the icing condition that often occurs in the vicinity of the Columbia River gorge. In certain areas the towers must be able to stand the strain of long spans of transmission cable loaded with an inch of ice.

No tonnage take-offs have been made here yet for the $4,500,000 graving drydock to be erected at the Puget Sound Navy Yard, Bremerton, Wash. The dock is to be of reinforced concrete construction.

Revised figures on Prado Dam, Riverside County, Cal., for which the United States Engineer, Los Angeles, will open bids Sept. 19, indicate that the bulk of the steel will be 5350 tons of reinforcing bars. This agency opens bids Sept. 2 for 2000 tons of reinforcing bars to be used in flood control work in the Los Angeles region.

Bethlehem Steel Co., Seattle, has been awarded 5100 tons of structural steel on two air hangar contracts in the Seattle territory.

The interest of structural-steel men on the Coast centers on the opening of bids Sept. 2 for the Tacoma Narrows Bridge, Tacoma, Wash., involving more than 17,500 tons of structural steel.

...BOSTON...

. . . Pig iron listless . . . Jobbing foundries have little work.

BOSTON, Sept. 30.—The pig iron market is drifting in a listless manner and gives no indication of snapping out of it within the near future. A survey of most New England jobbing foundries the past week showed a very large percentage doing almost nothing. Machinery and appliance foundries make a better showing, but comparatively few are operating more than four days a week. Many consumers have sufficient iron in their yards or on order to carry them into the last quarter, based on current operations.

Cast iron pipe business is holding up well, but a goodly percentage of current buying is in small lots without public bidding. Deliveries of 6-in. pipe are backward, so heavy has been demand. The Everett, Mass., Warren Foundry & Pipe Corp. foundry is still operating five days a week. The Boston & Maine Railroad Co.'s Billerica, Mass., locomotive repair shop will reopen Sept. 6, giving employment to 530 men.

Competition is so keen and the price situation so unsettled, some leading reinforcing steel firms are restricting bids on jobs.

...CINCINNATI...

. . . Sheet orders holding up to recent levels.

CINCINNATI, Aug. 30.—Current sheet business is holding to the levels of the preceding two weeks. The only fluctuation in ordering the past week was a slight decrease in automotive specifications, but this was offset by small gains in the miscellaneous demand. The market generally has a quiet but firm appearance and the trade generally is optimistic toward early fall improvement.

Steel making for the third consecutive week is set at about 54 per cent. All interests are stocking ingots against anticipated improvement in the fall. Currently, 18 out of 33 open hearths are in operation.

Pig iron shipments were moderately better this month.

. . . CLEVELAND . . .

. . . Operations slightly higher . . . August orders about 25% heavier in total volume than those of July . . . Further gains considered likely in September.

CLEVELAND, Aug. 30.—Output of raw steel has gained again this week in Ohio district due to gradually improved demand and the necessity for some mills to build up their inventories. Operations for Youngstown and nearby cities are up one point to 44 per cent and for the Cleveland-Lorain district up two points to 47 per cent.

Averaging all products, new business booked by mills in this vicinity during August shows a 25 per cent gain over July. Shipments have picked up also but not quite as well. Further gains in September are likely, and it is generally considered reasonable to expect national ingot production will rise 10 to 15 points more during the fall. No sudden burst of buying is expected right after Labor Day. While consumer inventories are low, most buyers intend to remain on a hand-to-mouth basis if they can, or at least until the necessity for stocking becomes more pressing. Producers are very much worried over the fact that losses are increasing daily.

Bethlehem and Carnegie-Illinois have been awarded the largest part of the 2000 tons for the Chesapeake & Ohio Car repair program. Bethlehem has taken 500 tons of piling for the Coast Guard station improvement program at Cleveland. Bids on a large intake line will be received by the city of Sandusky, Sept. 7 and 8. This will require 1275 to 2500 tons of 24 and 42-in. pipe, the exact amount depending on the material chosen.

Pig Iron

Shipments for August are up more than 25 per cent over those of July. Foundry coke shipments, a good barometer of the melt, have risen 40 per cent for one seller. New orders for iron remain negligible, except for scattered spot purchases. Interest in a possible upward price movement has subsided. With most consumers well covered, producers could not hope for any immediate benefit anyway.

Wire and Wire Products

From all present indications, September will bring a continuation of the satisfactory improvement shown during the past month by manufacturers' wire. In addition, moderately stronger demand for merchant products can be expected toward the close of September. New business in rods is very good.

Tubular Goods

Tonnage booked during August shows a comfortable advance over July. Interest continues to center on prices in the wake of a price sheet on lap weld casing issued recently by one producer, the first to come out with a new official sheet. The city of Sandusky, Ohio, will take bids Sept. 7 on 275 to 500 tons of 24-in. steel or cast iron pipe; on Sept. 8 will receive bids on 1000 to 2000 tons of 42-in. steel, cast iron or concrete pipe for an intake.

Sheets and Strip

Orders during August gained around 25 per cent over those of July. Shipments show a comparable increase over the previous month, indicating that most of the material is probably being bought for prompt use, practically the only exception being releases from the automotive industry against some of the material specified at the start of August. Ohio cold rollers and stamping plants have been increasingly active. Export inquiry has picked up recently.

Bolts, Nuts and Rivets

The industry confidently expects considerable improvement during September, mostly through automotive specifications. Additional producers have joined in the effort to tighten cap and set screw prices.

Grates, Bars and Plates

New business in hot rolled and alloy bars is 25 to 30 per cent better than during July. Demand for semi-finished and plates shows fair gains also. The structural shape and reinforcing bar markets are active, due to the appearance of numerous Government-financed projects. Bethlehem Steel Co. has been awarded 500 tons of sheet piling for the Coast Guard station, Cleveland. Reinforcing bar inquiry is headed by the 1500 tons for the West approach of the Main Street bridge.

Britain's Poor Trade Balance Unlikely to Affect U. S. Pact

LONDON (*By Mail*)—The United Kingdom's very unfavorable trade balance with the United States this year is not expected to hamper the negotiations under way for a new Anglo-American trade treaty. The rise in American exports to Britain is attributed entirely to abnormal and non-recurrent factors, of which enhanced grain and scrap metal purchases are outstanding examples. At the same time, the fall in British exports is due partly to the trade recession in the United States, with the consequent accumulation of stocks, and partly to higher costs in Britain resulting from the heavy demands of the rearmament program.

As a result, while British imports are up by $82,330,000, exports to the United States have fallen by $38,580,000 during the first half of 1938. This decline of more than 50 per cent in British exports to the United States is considered more serious from the British standpoint than the advance of imports from America. However, it is realized that the large stocks accumulated in America in the course of last year have imposed a temporary bar to new ordering. How soon this trend of British trade will be reversed depends largely on the course of trade activity in the United States. The experience of the last few months will doubtless increase the pressure from British manufacturers and other trading interests for maximum concessions in the proposed treaty.

Plane Contracts a Factor

To the increase in the value of grain supplies in Britain may be added those for which rearmament demand is responsible. Iron ore and scrap supplies, for example, have appreciated from £1,621,478 ($8,107,390) to £2,820,088 ($14,100,440). While there may be no recurrence of the iron and scrap deliveries which have resulted from orders placed a considerable time ago by the British Iron & Steel Corp., the execution of big airplane contracts for the Royal Air Force in California is bound to be shown in the trade returns during the coming year.

....ST. LOUIS....

. . . Public projects dominate building construction activity.

ST. LOUIS, Aug. 30.—Public projects continue to stimulate the buying of structural material. The 1500 tons of shapes required for the Army hangar at Scott Field, near Belleville, have been awarded to the American Bridge Co. Bids will be opened Aug. 31 for two warehouses at the same field, requiring 250 tons of shapes. Bids will be opened Aug. 31 for barracks at Fort Benjamin Harrison, Ind., for 250 tons of reinforcing bars and contracts have been awarded to the Great Lakes Construction Co., Chicago, and Struck Construction Co., Louisville, for 250 tons and 130 tons respectively for barracks at Fort Knox, Ky. Missouri Rolling Mills has been awarded 350 tons for buildings at the Hospital for Defective Delinquents at Springfield, Mo. Otherwise, the situation in finished steel is quiet.

Buying of pig iron has been confined to spot carloads, and only a few of them. However, shipments will show an increase for August as compared with July. The melt, too, is on the increase.

Ingot production was stepped up in the St. Louis area this week to 45 per cent.

..BIRMINGHAM..

. . . Sloss-Sheffield to start blast furnace Sept. 1 . . . Steel market stronger.

BIRMINGHAM, Aug. 30.—Sloss-Sheffield Steel & Iron Co. will blow in its second stack on Thursday, Sept. 1. The district will then have 13 active blast furnaces.

Last week 12 open hearths were operated for part of the week, when there was a reduction to 11 the latter part. Republic Steel took off one at Gadsden. This week 11 are scheduled: five at Fairfield, two at Ensley, four at Gadsden.

The steel market is growing stronger, and the fall outlook continues to improve. Demand is brisk for galvanized sheets, wire products and cotton ties. New structural and plate business improved last week.

The pig iron market remains on a steady basis.

The City Commission of Birmingham is expected to approve final details today (Aug. 30) for the construction of a $4,250,000 low cost housing project, which has been pending for some months and has been held up by the commission.

The State Highway Department has awarded contracts to the MacDougald Construction, Atlanta, for the construction of two concrete and steel underpasses in the city of Birmingham. Their cost will be $311,181.

..CAST IRON PIPE..

Centerville-Osterville, Mass., has awarded 2500 tons of pipe to United States Pipe & Foundry Co.

Lanesborough, Mass., is in the market for 17,000 ft. of 20-in. and 2800 ft. of 16-in. pipe.

Fairhaven, N. Y., plans pipe lines for water system and other waterworks installation Cost about $95,000. William S. Lozier, Inc., 10 Gibbs Street, Rochester, N. Y., is consulting engineer.

Swansea, S. C., plans pipe lines for water system and other waterworks equipment. Fund of $40,000 is being arranged through Federal aid and bond issue. L. O. Rast is water commissioner in charge.

Roanoke, Va., has authorized pipe lines for water system in Raleigh Court and Wasena districts. Cost about $65,000, of which $28,266 has been secured through Federal grant.

Spring Hill, Kan., plans pipe lines for water system and other waterworks installation. Cost about $75,000. Financing is being arranged through Federal aid. Shockley Engineering Co., Graphic Arts Building, Kansas City, Mo., is consulting engineer.

North Canton, Ohio, has awarded 280 tons for a water distribution system to J. B. Clow & Sons Co., Cleveland. H. C. Miller, Canton, Ohio, is general contractor.

Appleton, Wis., closes bids Sept. 1 on two minimum carloads of 6-in. and five carloads of 8-in., class 250, cast iron pipe or equal.

Poynette, Wis., has applied for PWA grant toward construction of $40,000 waterworks system. J. L. Kebaugh is village clerk.

Fredonia, Wis., plans construction of waterworks and sewerage system at estimated cost of $75,000 as PWA project.

Milton Junction, Wis., has applied for PWA grant toward construction of waterworks and sewerage system estimated to cost $173,000. W. G. Kirchoffer, 22 North Carroll Street, Madison, Wis., is consulting engineer. S. C. Hull is secretary.

Melrose, Wis., will take bids soon for pipe lines for water system and other waterworks installation. Cost about $47,200. Financing has been arranged through Federal aid. Frank J. Davy & Son, 502 Main Street, LaCrosse, Wis., are consulting engineers.

Golden, Colo., plans new pipe line for main water supply line from Long Lake source to city limits; also will build chlorination plant. Cost about $70,000. Financing is being arranged through Federal aid.

Creston, Iowa, plans pipe line extensions in water system; also new 500,000-gal. elevated steel tank on 125-ft. steel tower, and other waterworks installation. Cost about $48,000. Financing has been arranged through Federal aid.

Oakboro, N. C., plans pipe lines for water system and other waterworks installation. Cost about $60,000 with sewer system, to be carried out at same time. Bond issue of $33,000 will be voted at election Sept. 20, with grant of $27,000 to be secured through Federal aid. Paul M. Van Camp, Southern Pines, N. C., is consulting engineer.

Crab Orchard, Ky., plans pipe lines for water system and other waterworks installation, including elevated steel tank and tower, pumping station and auxiliaries. Cost about $53,400, of which $24,038 will be secured through Federal grant.

Morris, Okla., plans about 10,000 lin. ft., to replace present old steel pipe for water system; also about 1075 ft. of 4-in., and 2150 ft. of 2-in., with improvements in present waterworks equipment. Cost about $30,000. Financing has been arranged through Federal aid. H. T. Lawrence, 3244 N.W. Fourteenth Street, Oklahoma City, is consulting engineer.

Lincoln, Neb., plans new trunk line for main water supply in Y Street, from Fourteenth to Twenty-fifth Street. Cost about $44,000. D. L. Erickson is city engineer.

Roy, Utah, has awarded approximately 1250 tons of pipe to Pacific States Cast Iron Pipe Co., Provo, Utah.

Tucson, Ariz., asks bids Sept. 6 for construction of water system involving 1200 ft. of 12-in. pipe, 14,150 ft. of 6-in., 7750 ft. of 4-in., and 2400 lb. of fittings.

Vallejo, Cal., asks bids Sept. 3 for construction of Jamison Canyon pipe line requiring 3050 ft. 20-in. and 1000 ft. of 14-in. pipe.

Tacoma, Wash., has announced that United States Pipe and Foundry Co., San Francisco, is low bidder on 1710 tons of 4 to 20-in. pipe.

South Pasadena, Cal., has distributed order for 375 tons of various sized pipe between Utilities Supply Co., Los Angeles, American Cast Iron Pipe Co., Los Angeles, and United Pipe & Foundry Co., San Francisco.

CANADA

. . . Dominion business has receded, though still on good scale.

TORONTO, Aug. 29.—Business in the Canadian iron and steel markets failed to show much change during the week. Consumers are adhering to small-quantity buying for spot needs. Steel interests are expecting big contracts for airplanes, war supplies, and railroad rolling stock and equipment before the close of the year. At present most of the mills are carrying backlogs sufficient to enable present operating schedules of approximately 80 per cent for some time to come. The automotive industry is expected to step into higher production within the next month or two.

Demand for machinery and machine tools continues good and some large awards have been made for new plant equipment as well as for replacements.

Production of iron and steel has dropped in keeping with the reduced demand. At present four blast furnaces are blowing in Canada with pig iron output around 55,000 tons per month, the lowest rate in more than a year.

In the pig iron market sales are well below the average for the year, and the effects of the summer holiday season have not yet passed. Local blast furnace representatives look for speeding up in demand before the end of September.

. . PHILADELPHIA . .

. . . Eastern Pennsylvania operations hold at 27 per cent . . . Steel buying barely holds to early August level . . . Reinforcing weakness disturbs market . . . Constructional steel market appears more hopeful.

PHILADELPHIA, Aug. 30.—Even though order books are currently pretty skimpy and incoming business is hard pushed to equalize shipments, most mills in this area are maintaining open hearth operations unchanged from last week, the aggregate level for the eastern Pennsylvania area being 27 per cent. The entire market is in the throes of some wishful thinking with regard to an expectation of a sharp pick-up in ordering after Labor Day, some of the more blindly optimistic even looking for the buying to start nine o'clock Tuesday morning. But, even with the market shorn of high-powered optimism, there are underlying evidences of possible additional improvement in late September and early October. Warehouse stocks are quite low and in need of replenishment; a sizable volume of ship tonnage is due for disposition within several months at the latest; a bulge in automobile buying is certainly to be expected, even if it should possibly turn out to be only temporary in character; constructional steel lettings are improving with considerable speed; and even the railroads may be forced back into the market for repair steel. All these factors would appear to add up to considerably better steel making operations for this territory sometime before the year's end.

Pig Iron

With foundry melts improving very slowly if at all, the pig iron market is naturally listless. Woodward has reaffirmed prices for fourth quarter, and from the temper of the current market it would appear that most other stacks servicing this district will shortly announce similar action. In most instances, iron sellers report August shipments materially higher than those for July, but with an unchanged price situation quieting the market it is unlikely that September orders will display much additional improvement.

Plates

Turnover is very poor, in the absence of shipbuilding releases and railroad activity. Fortunately, the slack situation has not loosened the price situation, and all the tonnage that is moving is going at 2.15c. a lb., Philadelphia. Another indication of the healthy price tone was evident in recent competitive bidding on floor plates, with the final carlot order going at the full published price of 3.67c. a lb., Philadelphia.

Sheets and Strip

Warehouses are in and out of the market for small lots, but selling volume on the whole is being almost entirely supported by completely miscellaneous turnover. Autobody stamping plants have been purchasing fair quantities for '39 models, and it is this outlet that is expected to give the entire market a fillip in the early fall. Any price uneasiness that had been disturbing the market has been completely cleaned up, and a firm and unchanged price schedule for at least the early part of the fourth quarter is anticipated in most directions.

Bars

Sellers of reinforcing bars are quite disturbed over a weak price situation which shows no improvement with time. Some recent tonnage of attractive size has gone for under 1.80c. a lb., Philadelphia, but some sellers are dismayed over the situation and are striving to improve the market pricewise in preparation for better business in the fall, when PWA money releases a number of projects here. Fortunately, no price weakness has spread to merchant bars.

Shapes

Fabricated shapes continue to be weak pricewise, but active tonnages are in considerably better volume than a month ago. Bids went in today on a Philadelphia nurses' home, requiring 350 tons of shapes, and the city of Philadelphia received tenders today on 11,000 ft., or about 300 tons, of 24-in. welded steel pipe. A high school in Washington, due for bids on Sept. 13, will take 500 tons of shapes and a sizable quantity of bars. A major award of the week was for a viaduct in Westmoreland County, involving 750 tons of shapes, placed with American Bridge Co. through G. A. & F. M. Wagman, general contractors.

Imports

The following iron and steel imports were received here during the past week: 5 tons of ferrochrome, 18 tons of tube steel, 10 tons of forgings from Sweden; 150 tons of ferromanganese from Holland; and 100 tons of ferromanganese from Czechoslovakia.

National Enameling Workers Accept Cut, Plant Reopens

MILWAUKEE. — The National Enameling & Stamping Co., which closed its main works in Milwaukee in July because of high production costs, resumed part operations on Aug. 23 with a staff of 50 men which was increased to about 100 by the end of the week. After long negotiations over wages, the workers finally accepted a slight reduction in wages. The firm in recent months has shifted some of its Milwaukee operations to its plants in other states and had threatened to close its Milwaukee factory permanently because of the labor dispute.

Unemployment in U. S. Declined in July

FEATURED by an increase of 144,000 workers in the construction industry from June to July, the total number of persons employed in the United States rose by 61,000 during the same period, according to the latest estimates of the statistical division, National Industrial Conference Board. Meanwhile unemployment dropped off for the second consecutive month, with a total of 10,939,000 unemployed in July indicated by preliminary figures of the conference board.

Reclamation Bureau Bar Order to Columbia Steel

WASHINGTON.—The Reclamation Bureau has awarded a $42,060 contract to the Columbia Steel Co. of Denver, for 779 tons of steel reinforcing bars to be used on the All-American Canal project. The bureau also awarded a $18,942 contract to Goldberg Bros. of Denver, for annealed copper for use at Grand Coulee Dam.

REINFORCING STEEL

. . . Awards of 5525 tons; 13,430 tons in new projects.

AWARDS

872 **Tons,** Calexico, Cal., All-American Canal (Invitation B-42099-A), to Columbia Steel Co., Denver.

600 **Tons,** Queens, N. Y., foundations, Queensbridge housing project, to Fireproof Products Co., New York, through Corbetta Construction Co., New York.

550 **Tons,** Dixon, Ill., bridge, to Calumet Steel Co., Chicago; Shappert Engineering Co., contractor.

500 **Tons,** San Diego, Naval assembly building, to Bethlehem Steel Co., Los Angeles.

380 **Tons,** Newtown, Conn., State hospital, to Concrete Steel Co., New York.

350 **Tons,** Springfield, Mo., buildings at Hospital for Defective Delinquents, to Missouri Rolling Mills Corp., St. Louis; through Henke Construction Co., Chicago.

278 **Tons,** Calexico, Cal., All-American Canal (Invitation B-42101-A), to Bethlehem Steel Co., San Francisco.

250 **Tons,** Lyons, N. J., Veterans' hospital, to Ceco Steel Products Co., Jersey City, through A. Christensen, Elizabeth, N. J.

225 **Tons,** Little Rock, Ark., auditorium, to Sheffield Steel Corp., Kansas City.

205 **Tons,** Chicago, Winnemac Gardens, to Inland Steel Co., Chicago; Belmar Engineering Co., contractor.

200 **Tons,** Brooklyn, Borden Avenue grade crossing, to Bethlehem Steel Co., through J. Meehan & Son, New York.

179 **Tons,** Odair, Wash., Grand Coulee project (Invitation A 38100 A), to Judson Steel Co., San Francisco.

176 **Tons,** Hope Center, N. Y., mesh, highway project, RC-3976, to American Steel & Wire Co., New York, through Lane Construction Co., Meriden, Conn.

176 **Tons,** Ironton, Ohio, Federal flood prevention project, to West Virginia Rail Co., Huntington, W. Va.

175 **Tons,** Savanna, Ill., powder magazine, to Inland Steel Co., through Permanent Construction Co.

175 **Tons,** Topeka, Kan., flood wall, to Sheffield Steel Corp.; R. G. Aldrich Co., contractor.

160 **Tons,** Savanna, Ill., power magazines, to Inland Steel Co., through Permanent Construction Co.

160 **Tons,** Saugus, Cal., Santa Clara River bridge, to Soule Steel Co., San Francisco, by Griffith Co., general contractors.

155 **Tons,** New York, Eastside drive, to Ceco Steel Products Co., Jersey City, through Merritt-Chapman & Scott Corp., New York.

150 **Tons,** Chicago, 18th Street coach, yard, Santa Fe Railroad, to Joseph T. Ryerson & Son, Chicago.

140 **Tons,** Sandstone, Minn., Federal jail, to Truscon Steel Co., Youngstown; Maurice Schumacher, contractor.

140 **Tons,** Boulder City, Nev., Boulder Dam project (Invitation C 23237 A), to Bethlehem Steel Co., San Francisco.

135 **Tons,** Sawtelle, Cal., barracks at Veterans' Home, to Soule Steel Co., San Francisco, by Robert E. McKee, general contractor.

125 **Tons,** San Diego, jail and police station, to Fenton Material Co., San Diego, by M. H. Golden, general contractor.

125 **Tons,** Canton, Ohio, high school building, to Pollak Steel Co., Cincinnati, through Gibbons Grable Sons, Canton.

125 **Tons,** Deer Creek, Utah (Invitation 27539), to Colorado Fuel & Iron Co., Pueblo, Colo.

120 **Tons,** Galesburg, Ill., hotel, to Calumet Steel Co., Chicago; Ducett Co., contractor.

115 **Tons,** Washington County, Iowa, underpass, to Sheffield Steel Corp., Kansas City; Massman Construction Co., contractor.

115 **Tons,** Mills, Wyo., Kendrick project (Invitation A 22353 A), to Colorado Fuel & Iron Co., Pueblo, Colo.

111 **Tons,** Wooster, Ohio, sewage treatment plant, to Pollak Steel Co., Cincinnati, through Holmes Construction Co., Wooster.

103 **Tons,** Lompoc, Cal., Santa Ynez River bridge, to Trojan Steel Co., Los Angeles, by L. W. Odell, general contractor.

102 **Tons,** Newport Beach, Cal., Santa Ana River bridge, to Soule Steel Co., San Francisco, by G. E. Kerns, general contractor.

100 **Tons,** Westerly, R. I., road work to Wickwire Steel Co., New York; Callan Construction Co., Inc., Bristol, R. I., contractor.

100 **Tons,** New York, Lincoln Tunnel ventilation building, to Seaboard Steel Products Corp., New York.

100 **Tons,** Kalamazoo, Mich., power plant, to Bethlehem Steel Co., Bethlehem, Pa.; Miller-Davis, contractor.

NEW REINFORCING BAR PROJECTS

5350 **Tons,** Los Angeles, Prado Dam (revised tonnage); bids Sept. 19.

5000 **Tons,** Queens, N. Y., superstructures, Red Hook housing project; bids close Sept. 12.

4200 **Tons,** Los Angeles, terminal annex parcel post building; Sarver & Zoss, Inc., Los Angeles, general contractor.

2000 **Tons,** Los Angeles, United States Engineer (Proposal 132); bids Sept. 2.

1618 **Tons,** Tacoma, Wash., Tacoma Narrows toll bridge; bids Sept. 2.

1500 **Tons,** Cleveland, west approach to Main Street bridge; bids Sept. 20.

860 **Tons,** Brooklyn, Meeker Avenue bridge, Elmhurst Contracting Co., Queens, N. Y.

711 **Tons,** Ogden, Utah, Ordnance Depot.

650 **Tons,** Brighton, Mass., hospital; John Bowen Co., Inc., Boston, contractor.

630 **Tons,** Los Angeles, two buildings for Veterans' Administration; Robert E. McKee, general contractor.

625 **Tons,** Armstrong County, Pa., Mahoning Creek dam.

615 **Tons,** Lock Haven, Pa., Clinton County bridge.

450 **Tons,** Queens, N. Y., Red Hook housing project, superstructure.

400 **Tons,** Wahjamega, Mich., hospital.

380 **Tons,** Fort Knox, Ky., barracks; general contracts awarded to Great Lakes Construction Co., Chicago, for two buildings requiring 250 tons, and to Struck Construction Co., Louisville, Ky., for one building, requiring 130 tons.

350 **Tons,** Springfield, Mo., building at hospital for Defective Delinquents; Henke Construction Co., Chicago, general contractor.

300 **Tons,** Boston, Singer Sewing Machine Co. building.

300 **Tons,** Boston, repairs to three schools.

269 **Tons,** Palo Alta, Cal., Veterans' Infirmary; James I. Barnes, Santa Monica, general contractor.

250 **Tons,** Spadra, Cal., unit 15 and two custodial buildings; bids Sept. 6.

250 **Tons,** Fort Benjamin Harrison, Ind., barracks; bids taken Aug. 31.

250 **Tons,** Malden, Mass., school.

225 **Tons,** Marquette, Mich., Masonic Temple.

180 **Tons,** Jacksonville, Ill., waterworks.

150 **Tons,** Medford, Mass., school.

150 **Tons,** Hastings, Neb., Central Nebraska Public Power and Irrigation, group 22 E.

150 **Tons,** Wausau, Wis., sewage plant.

140 **Tons,** Philadelphia, warehouse, Philadelphia Smoked Meats, Inc.

130 **Tons,** Norfolk, Va., bridge over Lafayette River.

125 **Tons,** Cambridge, Mass., sanatorium.

125 **Tons,** Wichita, Kan., Sears, Roebuck & Co. building.

125 **Tons,** Canton, Ill., sewage disposal plant.

105 **Tons,** Bonita, Cal., Sweetwater River bridge for San Diego County; bids Sept. 7.

100 **Tons,** Elyria, Ohio, waterworks; General Construction Co., Columbus, general contractor.

100 **Tons,** Lowell, Mass., underpass; Coleman Brothers, Boston, contractors.

100 **Tons,** Detroit, grade separation.

100 **Tons,** Cleveland, Case School of Applied Science.

100 **Tons,** Chicago, Coast Guard station.

Argentine May Drop Tariff on Machinery

LONDON.—It is officially announced that the Argentine Government has tabled a bill prohibiting exports from the Argentine of all metals, including alloys. The object of the measure is to insure supplies of raw materials for domestic industries. It is also proposed to exempt imports of machinery and materials for producing iron and steel from customs duties for a period of five years.

. . .NON-FERROUS. . .

. . . Grave political situation abroad weakens prices in London . . . Buying here contracts but shipments continue in good volume . . . August lead shipments estimated at 40,000 tons.

NEW YORK, Aug. 30.—The gravity of recent political developments in Europe found reflection in the past week in the downward trend of prices on the London metal exchange. Added to the disturbed political situation was the weakness in the stock market here. Although these developments have not as yet had any effect on domestic prices outside of reducing the spread between the cost of imported and domestic metal, they have caused a sharp contraction in buying activity in the past two days. With consumption in this country gradually improving, the future of prices in a large measure rests upon the actions of foreign markets. Domestic copper sales last week were at the same level as the previous week, bringing the total for the month through Saturday to 19,888 tons. Producers' prices are unchanged at 10.125c. per lb., Connecticut Valley, for electrolytic metal, but offerings in the outside market are down to 9.875c. per lb, with no great amount of business transacted. Following a short spurt early last week, export buyers are showing little interest in the market. This morning's cartel sales were done in the neighborhood of 10.08c. per lb., c.i.f., usual base ports.

The Week's Prices. Cents Per Pound for Early Delivery

	Aug. 24	Aug. 25	Aug. 26	Aug. 27	Aug. 29	Aug. 30
Electrolytic copper, Conn.*	10.125	10.125	10.125	10.125	10.125	10.125
Lake copper, N. Y.	10.25	10.25	10.25	10.25	10.25	10.25
Straits tin, spot, New York	43.60	43.20	43.375	....	42.80	43.30
Zinc, East St. Louis	4.75	4.75	4.75	4.75	4.75	4.75
Zinc, New York	5.14	5.14	5.14	5.14	5.14	5.14
Lead, St. Louis	4.75	4.75	4.75	4.75	4.75	4.75
Lead, New York	4.90	4.90	4.90	4.90	4.90	4.90

*Delivered Connecticut Valley; price ¼c. lower delivered in New York.
Aluminum, virgin, 99 per cent plus 20.00c.-21.00c. a lb., delivered.
Aluminum No. 12 remelt No. 2 standard, in carloads, 19.00c. to 19.50c. a lb., delivered.
Nickel, electrolytic, 35c. to 36c. a lb. base refinery, in lots of 2 tons or more.
Antimony, Asiatic, 14.00c. a lb., prompt, f.o.b., New York.
Antimony, American, 11.25c. per lb., prompt shipment, New York.
Quicksilver, $76.00 to $77.00 per flask of 76 lb.
Brass ingots, commercial 85-5-5-5, 10.75c. a lb., less carload, delivered in Middle West ¼c. a lb. is added on orders for less than 40,000 lb.

From New York Warehouse

Delivered Prices, Base per Lb.

Tin, Straits pig	44.25c. to 45.25c.
Tin, bar	46.25c. to 47.25c.
Copper, Lake	11.375c. to 12.375c.
Copper, electrolytic	11.125c. to 12.125c.
Copper, castings	10.625c. to 11.625c.
*Copper sheets, hot-rolled	18.25c.
*High brass sheets	16.75c.
*Seamless brass tubes	19.50c.
*Seamless copper tubes	18.75c.
*Brass rod	12.75c.
Zinc, slabs	6.25c. to 7.25c.
Zinc, sheets (No. 9), casks, 1200 lb. and over	10.50c.
Lead, American pig	5.50c. to 6.50c.
Lead, bar	6.25c. to 6.625c.
Lead, sheets, cut	7.75c.
Antimony, Asiatic	15.00c. to 16.00c.
Alum., virgin, 99 per cent plus	22.50c. to 24.00c.
Alum., No. 1 for remelting, 98 to 99 per cent	19.50c. to 21.00c.
Solder, ½ and ½	29.25c. to 30.25c.
Babbitt metal, commercial grade	20.00c. to 50.00c.

*These prices, which are also for delivery from Chicago and Cleveland warehouses, are quoted with the following percentages allowed off for extras; on copper sheets, 33 1/3; on brass sheets and rods, 40, and on brass and copper tubes, 25.

From Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits, pig	47.00c.
Tin, bar	49.00c.
Copper, Lake	11.125c. to 11.375c.
Copper, electrolytic	11.125c. to 11.375c.
Copper, castings	10.925c.
Zinc, slabs	7.50c. to 7.75c.
Lead, American pig	5.40c. to 5.65c.
Lead, bar	8.50c.
Antimony, Asiatic	17.75c. to 18.00c.
Babbitt metal, medium grade	21.00c.
Babbitt metal, high grade	51.00c.
Solder, ½ and ½	28.00c.

Old Metals Per Lb., New York

Buying prices are paid by dealers for miscellaneous lots from smaller accumulators and selling prices are those charged to consumers after the metal has been prepared for their uses. (All prices are nominal.)

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible	8.125c.	8.875c.
Copper, hvy. and wire	7.125c.	7.625c.
Copper, light and bottoms	6.375c.	6.625c.
Brass, heavy	4.375c.	4.875c.
Brass, light	3.375c.	4.125c.
Hvy. machine composition	6.875c.	8.375c.
No. 1 yel. brass turnings	4.25c.	4.75c.
No. 1 red brass or compos. turnings	6.375c.	6.875c.
Lead, heavy	3.50c.	3.875c.
Cast aluminum	6.50c.	7.75c.
Sheet aluminum	10.75c.	12.25c.
Zinc	2.125c.	3.375c.

Zinc

Sales of prime Western metal last week were about 1500 tons, as compared with 755 tons in the preceding week. Most of this metal, however, was bought early in the week and since Friday there has been nothing but a small amount of hand-to-mouth buying. Shipments in the past week tota'ed 3500 tons, causing undelivered stocks to drop to 30,900 tons. The domestic price is unchanged at 5.14c. per lb., New York, while the foreign price declined this morning to 2.87c. per lb. for spot metal.

Lead

Well diversified buying boosted the past week's sales total about 1000 tons above the previous week, but the confused situation abroad has acted to dry up inquiry with the result that for the past two days the market has been rather dull. Prices here remain unchanged at 4.90c. per lb., New York, but London quotations are down to 3.08c. per lb. for spot metal. Despite the present dullness, the undertone of the market is very strong, and has received added strength from trade estimates which place August shipments at 40,000 tons, which would indicate a further reduction in stocks. The high rate of releases against contracts has been another strengthening factor.

Tin

The past week was a very dull period in the tin market. Buying was limited and prices moved narrowly. Today's quotation on Straits metal, New York, is 43.30c. per lb., or slightly above the price of a week ago, but below the week's high of 43.375c. Sellers do not anticipate any improvement in sales until tin plate prices are announced and are not trying to force sales at this time. The market in London was likewise very quiet, with prices on the soft side. On first call in London this morning cash standards were quoted at£192 and three months metal at £193. The Eastern price was £201 2s. 6d.

IRON AND STEEL SCRAP

. . . Scrap markets steady while awaiting developments
. . . Composite price unchanged.

AUG. 30.—Prices of iron and steel scrap are mostly unchanged this week. Where minor adjustments have been made, they are downward, but only slightly so. The scrap markets are in a waiting position. If there is a continued upward trend in steel operations after Labor Day week, renewed strength in prices is to be expected. The undertone is fairly strong, particularly at Pittsburgh, where brokers are paying $15.50 for No. 1 heavy melting steel against orders on their books. THE IRON AGE scrap composite price is unchanged at $14.50.

Pittsburgh

The market appears to be marking time and the volume of transactions during the next few weeks will probably determine a more definite trend. Meanwhile, $15.50 is still being paid by brokers for tonnages of No. 1 steel for delivery to nearby points, where a fair amount of scrap has gone into consumption during the past few weeks. Part of the railroad heavy melting steel on a recent list was sold into consumption at around $16.50 a ton. Other grades of scrap are not much in demand with some prices nominal.

Chicago

Absence of an active consumer is holding the market stationary at $14 top for No. 1 steel. Some railroad steel has been sold at a differential in line with current quotations. Brokers are paying $13.50 for heavy melting grades but dealers are not particularly anxious to sell and buyers are not pressing.

Cleveland

Outside of a small purchase of blast furnace scrap at around $8 a ton, the market has been lifeless. Heavy melting steel at $13 to $13.50 a ton appears justified on the basis of what might be obtained through shipments out of town. Only a small amount of steel is on the New York Central list closing this week.

Youngstown

The release of a few extra cars at Warren, Ohio, last week provided temporary optimism, but apparently was a flash in the pan, for the clamps have been applied this week on shipments. The market appears to be at a critical point, where prices may not hold up much longer in the face of weak demand.

Buffalo

The scrap market is strong but very dull. With the principal consumer continuing out of the market, no sales of any consequence have been reported, although the rate of steel operations shows an upward trend. Greater activity is looked for after Labor Day.

St. Louis

The sale recorded last week of 8000 tons of No. 2 heavy melting steel to an East Side mill has had the result of steadying the market for scrap. Shipments of scrap to this market are more free now, following the recent advances in dealers' buying prices. Mills are said to be well fortified with stocks. It is not expected that there will be further commitments by consumers for at least 30 days. One mill is said to have enough scrap on hand and purchased to last until Feb. 1.

Cincinnati

Movement of small scrap accumulations strengthened the undertone the past week, but otherwise the old materials market is unchanged. Bids are at the level of last week with dealers moving cautiously in anticipation of post Labor Day improvement. Mills are still reluctant to increase their costs and are not disposed to match dealer optimism on prices.

Detroit

Slight bearishness was seen in Detroit during the past week. A trend to somewhat lower price levels was accentuated by the attitude of the area's large consumer, which indicated that there would be no buying at current levels. During the week fair-sized tonnages will be offered on list by a number of the automobile plants, the total being approximately 200 carloads.

Boston

Business in both the domestic delivery and export market is very quiet, and prices, as a rule, are holding. Those for breakable cast for eastern Pennsylvania delivery, however, are easier, $10.15 a ton on cars now being generally quoted. For regular steel turnings $3.38 a ton on cars is the going price, but short shoveling turnings are worth $4.50. Demand for chemical borings is flat, even gas makers having withdrawn from the market. No. 1 textile cast for most consuming points is quoted at $14.50 to $15 a ton, delivered, but a 100 ton sale by a southern New England dealer is reported at $12.50 a ton for nearby delivery.

New York

The market here is drifting along, with a pre-holiday inertia the most dominant characteristic. The entire list is practically unchanged pricewise from a week ago, although the undertone is on the strong side and completely susceptible to a moderate upward move after Labor Day if steel making operations continue to improve. The flow of supplies through yards is none too heavy, and all available material is being taken by brokers, either for immediate delivery to Europe and the Far East or for domestic delivery into eastern Pennsylvania. Most prominent grades are the heavy melting steels, cast iron and stove plate, with certain specialties enjoying a bulge in activity as the result of recent Japanese demands.

Philadelphia

The moderate mark-down in this market of a fortnight ago has failed to encourage buying, the result being that the current situation is rather listless and quite evidently awaiting a cue from the steel making operating rate after Labor Day. Granted some progressive improvement in steel production early in September, the scrap market here should continue its upward march, although hesitancy in steel output would certainly have a decided adverse effect. A little steel is passing through yards at the moment for processing and shipment to district melters on old contracts, although not enough new business has been in the market for almost two weeks to adequately test quoted price levels. Export is currently non-existent here, although there is growing expectation of additional Japanese business in the late fall.

Magnesium Fabricators Operate New Foundry

ADRIAN, MICH. — Magnesium Fabricators, Inc., last week began operation of a new foundry, casting products from Magalloy, a trade name for a metal said to be stronger and one-third lighter than aluminum. The first casting was a diffuser plate for airplane motor superchargers. It weighed only 10.5 lb. and was about the size of an iron casting which would weigh 50 lb.

Great Lakes Pressed Steel Co., Buffalo, is erecting a two-story building to be used as an office and warehouse. It will be completed about Sept. 1.

Trico Fuse Mfg. Co., Milwaukee, announces the appointment of H. L. Huxster, 1110 Darby Road, Upper Darby, Pa., as district sales representative in southeastern Pennsylvania and southern New Jersey.

Youngstown Sheet & Tube Co., Youngstown, has declared the regular preferred dividend of $1.37½ per share payable Oct. 1, 1938, to shareholders of record Sept. 10, 1938.

Wailes-Dove-Hermiston Corp., New York, announces the appointment of The Careva Co., York, Pa.; the Lindquist Hardware Co., Bridgeport, Conn.; the Bradford Supply Co., Warren and Titusville, Pa.; the Hays Supply Co., Memphis, Tenn., and the Bittenbender Co., Scranton, Pa., as stock-carrying distributers for the Bitumastic line of industrial maintenance protective coatings.

Iron and Steel Scrap Prices

PITTSBURGH

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$15.25 to $15.75
Railroad hvy. mltng..	16.00 to 16.50
No. 2 hvy. mltng. steel	14.00 to 14.50
Scrap rails	16.00 to 16.50
Rails 3 ft. and under..	16.50 to 17.00
Comp. sheet steel	15.25 to 15.75
Hand bundled sheets..	14.25 to 14.75
Hvy. steel axle turn..	14.00 to 14.50
Machine shop turn....	9.50 to 10.00
Short shov. turn.....	9.50 to 10.00
Mixed bor. & turn....	8.00 to 8.50
Cast iron borings.....	8.00 to 8.50
Cast iron carwheels...	14.50 to 15.00
Hvy. breakable cast...	12.50 to 13.00
No. 1 cupola cast.....	15.00 to 15.50
RR. knuckles & cplrs.	17.00 to 17.50
Rail coil & leaf springs	17.00 to 17.50
Rolled steel wheels...	17.00 to 17.50
Low phos. billet crops.	17.50 to 18.00
Low phos. punchings.	16.00 to 16.50
Low phos. plate	16.00 to 16.50

PHILADELPHIA

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$14.00 to $14.50
No. 2 hvy. mltng. steel.	12.50 to 13.00
Hydraulic bund.. new.	14.00 to 14.50
Hydraulic bund., old..	11.00 to 11.50
Steel rails for rolling.	17.00 to 17.50
Cast iron carwheels...	16.50 to 17.00
Hvy. breakable cast..	15.50 to 16.00
No. 1 cast	16.00 to 16.50
Stove plate (steel wks.)	13.00 to 13.50
Railroad malleable ...	15.50 to 16.00
Machine shop turn....	7.50 to 8.00
No. 1 blast furnace....	6.50 to 7.00
Cast borings	6.50 to 7.00
Heavy axle turnings..	10.00 to 10.50
No. 1 low phos. hvy....	16.50 to 17.00
Couplers & knuckles..	16.50 to 17.00
Rolled steel wheels ...	16.50 to 17.00
Steel axles	21.50 to 22.00
Shafting	19.00 to 19.50
No. 1 RR. wrought....	15.00 to 15.50
Spec. iron & steel pipe	12.00 to 12.50
No. 1 forge fire	10.50 to 11.00
Cast borings (chem.)..	9.50 to 10.00

CHICAGO

Delivered to Chicago district consumers:

	Per Gross Ton
Hvy. mltng. steel	$13.50 to $14.00
Auto. hvy. mltng. steel alloy free	12.00 to 12.50
No. 2 auto. steel	11.50 to 12.00
Shoveling steel	13.50 to 14.00
Factory bundles	12.50 to 13.00
Dealers' bundles	12.00 to 12.50
Drop forge flashings..	10.50 to 11.00
No. 1 busheling	12.50 to 13.00
No. 2 busheling, old...	5.25 to 5.75
Rolled carwheels	16.00 to 16.50
Railroad tires, cut....	16.50 to 17.00
Railroad leaf springs..	16.50 to 17.00
Steel coup. & knuckles	16.00 to 16.50
Axle turnings	12.50 to 13.00
Coil springs	17.00 to 17.50
Axle turn. (elec.)	13.00 to 13.50
Low phos. punchings.	16.50 to 17.00
Low phos. plates 12 in. and under	16.50 to 17.00
Cast iron borings	7.00 to 7.50
Short shov. turn.	7.50 to 8.00
Machine shop turn....	6.50 to 7.00
Rerolling rails	18.00 to 18.50
Steel rails under 3 ft..	16.50 to 17.00
Steel rails under 2 ft..	17.00 to 17.50
Angle bars, steel	16.00 to 16.50
Cast iron carwheels...	14.00 to 14.50
Railroad malleable	15.50 to 16.00
Agric. malleable	11.00 to 11.50
	Per Net Ton
Iron car axles	19.00 to 19.50
Steel car axles	19.50 to 20.00
Locomotive tires	16.50 to 17.00
Pipes and flues	9.50 to 10.00
No. 1 machinery cast.	13.00 to 13.50
Clean auto. cast.	12.50 to 13.00
No. 1 railroad cast....	12.00 to 12.50
No. 1 agric. cast.....	11.50 to 12.00
Stove plate	9.50 to 10.00
Grate bars	9.50 to 10.00
Brake shoes	10.50 to 11.00

YOUNGSTOWN

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$14.50 to $15.00
Hydraulic bundles	13.50 to 14.00
Machine shop turn....	11.00 to 11.50

CLEVELAND

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$13.00 to $13.50
No. 2 hvy. mltng. steel.	12.00 to 12.50
Comp. sheet steel	12.25 to 12.75
Light bund. stampings	9.00 to 9.50
Drop forge flashings..	10.00 to 10.50
Machine shop turn....	8.00 to 8.50
Short shov. turn.	8.50 to 9.00
No. 1 busheling	10.50 to 11.00
Steel axle turnings....	10.00 to 10.50
Low phos. billet and bloom crops	17.00 to 17.50
Cast iron borings	7.50 to 8.00
Mixed bor. & turn....	7.50 to 8.00
No. 2 busheling	7.50 to 8.00
No. 1 cast	16.00 to 16.50
Railroad grate bars ..	9.50 to 10.00
Stove plate	10.00 to 10.50
Rails under 3 ft.	16.50 to 17.00
Rails for rolling	14.50 to 15.00
Railroad malleable ...	15.50 to 16.00
Cast iron carwheels ..	15.00 to 15.50

BUFFALO

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$14.00 to $14.50
No. 2 hvy. mltng. steel.	12.00 to 12.50
Scrap rails	15.00 to 15.50
New hvy. bndled sheets	12.00 to 12.50
Old hydraul. bundles.	10.50 to 11.00
Drop forge flashings..	12.00 to 12.50
No. 1 busheling	12.00 to 12.50
Hvy. axle turnings....	10.50 to 11.00
Machine shop turn....	6.75 to 7.25
Knuckles & couplers..	16.50 to 17.00
Coil & leaf springs....	16.50 to 17.00
Rolled steel wheels....	16.00 to 16.50
Low phos. billet crops.	15.50 to 16.00
Shov. turnings	6.75 to 7.25
Mixed bor. & turn....	6.75 to 7.25
Cast iron borings	6.50 to 7.00
Steel car axles	16.50 to 17.00
No. 1 machinery cast.	15.50 to 16.00
No. 1 cupola cast.	14.50 to 15.00
Stove plate	12.00 to 12.50
Steel rails under 3 ft..	17.50 to 18.00
Cast iron carwheels...	13.50 to 14.00
Railroad malleable ...	14.50 to 15.00
Chemical borings	8.50 to 9.00

ST. LOUIS

Dealers' buying prices per gross ton delivered to consumer:

Selected hvy. melting.	$12.50 to $13.00
No. 1 hvy. melting....	12.50 to 13.00
No. 2 hvy. melting....	12.00 to 12.50
No. 1 locomotive tires.	14.00 to 14.50
Misc. stand. sec. rails.	14.00 to 14.50
Railroad springs	15.00 to 15.50
Bundled sheets	8.00 to 8.50
No. 1 busheling	7.50 to 8.00
Cast. bor. & turn.....	4.25 to 4.75
Machine shop turn....	4.25 to 4.75
Heavy turnings	8.00 to 8.50
Rails for rolling	16.50 to 17.00
Steel car axles	18.00 to 18.50
Iron car axles	19.50 to 20.00
No. 1 RR. wrought....	11.50 to 12.00
No. 2 RR. wrought....	12.50 to 13.00
Steel rails under 3 ft..	14.50 to 15.00
Steel angle bars	14.50 to 15.00
Cast iron carwheels...	13.00 to 13.50
No. 1 machinery cast..	13.50 to 14.00
Railroad malleable ...	12.00 to 12.50
No. 1 railroad cast	10.50 to 11.00
Stove plate	8.50 to 9.00
Grate bars	8.50 to 9.00
Brake shoes	9.00 to 9.50

CINCINNATI

Dealers' buying prices per gross ton at yards:

No. 1 hvy. mltng. steel.	$11.50 to $12.00
No. 2 hvy. mltng. steel.	9.25 to 10.00
Scrap rails for mltng..	15.50 to 16.00
Loose sheet clippings.	6.50 to 7.00
Hydrau. b'ndled sheets	10.50 to 11.00
Cast iron borings	3.50 to 4.00
Machine shop turn....	4.00 to 4.50
No. 1 busheling	8.25 to 8.75
No. 2 busheling	3.00 to 3.50
Rails for rolling	17.50 to 18.00
No. 1 locomotive tires.	14.25 to 14.75
Short rails	18.00 to 18.50
Cast iron carwheels...	12.75 to 13.25
No. 1 machinery cast.	12.25 to 12.75
No. 1 railroad cast....	11.25 to 11.75
Burnt cast	7.25 to 7.75
Stove plate	7.25 to 7.75
Agricul. malleable	11.75 to 12.25
Railroad malleable ...	14.75 to 15.25
Mixed hvy. cast	9.75 to 10.25

BIRMINGHAM

Per gross ton delivered to consumer:

Hvy. melting steel....	$12.50 to $14.00
Scrap steel rails	14.50 to 15.00
Short shov. turnings..	7.50 to 8.1[illegible]
Stove plate	9.00 to 10.00
Steel axles	15.00 to 16.00
Iron axles	15.00 to 16.00
No. 1 RR. wrought....	.... 10.00
Rails for rolling	16.00 to 16.50
No. 1 cast	.... 14.50
Tramcar wheels	.... 14.00

DETROIT

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$10.00 to $10.50
No. 2 hvy. mltng. steel.	8.50 to 9.00
Borings and turnings.	6.25 to 6.75
Long turnings	6.25 to 6.75
Short shov. turnings..	7.25 to 7.75
No. 1 machinery cast..	11.50 to 12.00
Automotive cast	12.50 to 13.00
Hvy. breakable cast...	9.00 to 9.50
Hydraul. comp. sheets	12.00 to 12.50
Stove plate	8.00 to 8.50
New factory bushel...	11.00 to 11.50
Old No. 2 busheling..	3.00 to 3.50
Sheet clippings	8.50 to 9.00
Flashings	9.00 to 9.50
Low phos. plate scrap	11.50 to 12.00

NEW YORK

Dealers' buying prices per gross ton on cars:

No. 1 hvy. mltng. steel.	$9.50 to $10.00
No. 2 hvy. mltng. steel	8.00 to 8.50
Hvy. breakable cast..	11.00 to 11.50
No. 1 machinery cast.	12.00 to 12.50
No. 2 cast	9.50 to 10.00
Stove plate	9.00 to 9.50
Steel car axles	20.00 to 20.5[illegible]
Shafting	15.00 to 15.5[illegible]
No. 1 RR. wrought....	11.00 to 11.50
No. 1 wrought long.. .	9.50 to 10.00
Spec. iron & steel pipe	8.50 to 9.0[illegible]
Rails for rolling	16.00 to 16.50
Clean steel turnings*	3.50 to 4.00
Cast borings*	3.00 to 3.50
No. 1 blast furnace...	3.00 to 3.5[illegible]
Cast borings (chem.)..	9.50 to 10.00
Unprepared yard scrap	5.00 to 5.50
Light iron	3.00 to 3.5[illegible]
Per gross ton, delivered local foundries	
No. 1 machn. cast†....	$13.50 to $14.00
No. 2 cast†	10.50 to 11.00

*$1.50 less for truck loads
† Northern N. J. prices are $2 to $2.50 higher.

BOSTON

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.....	Nominal
Scrap rails	Nominal
No. 2 steel	Nominal
Breakable cast	$10.15
Machine shop turn....	$3.38 to 4.50
Mixed bor. & turn.....	3.30
Bun. skeleton long....	6.73
Shafting	14.50 to 14.65
Cast bor. chemical....	5.50 to 5.75
Per gross ton delivered consumers' yards:	
Textile cast	$14.50 to $15.00
No. 1 machine cast....	14.00 to 14.50

PACIFIC COAST

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$11.65 to $12.15
No. 2 hvy. mltng. steel.	10.65 to 11.15

CANADA

Dealers' buying prices at their yards, per gross ton:

	Toronto	Montreal
No. 1 hvy. mltng. steel.	$9.50	$9.00
No. 2 hvy. mltng. steel.	8.00	7.50
Mixed dealers steel...	7.00	6.50
Scrap pipe	5.50	5.00
Steel turnings	4.50	4.00
Cast borings	3.50	3.00
Machinery cast	15.00	14.00
Dealers cast	13.00	12.00
Stove plate	11.00	10.50

EXPORT

Dealers' buying prices per gross ton:

New York, truck lots, delivered, barges

No. 1 hvy. mltng. steel.	$11.00 to $11.50
No. 2 hvy. mltng. steel.	9.50 to 10.00
No. 2 cast	10.00 to 11.00
Stove plate	9.00 to 10.00

Boston on cars at Army Base or Mystic Wharf

No. 1 hvy. mltng. steel.	$12.50 to $13.00
No. 2 hvy. mltng. steel.	11.50
Rails (scrap)	$12.50 to 12.75

Philadelphia, delivered alongside boats, Port Richmond

No. 1 hvy. mltng. steel....	Nominal
No. 2 hvy. mltng. steel....	Nominal

PRICES ON FINISHED AND SEMI-FINISHED IRON AND STEEL

SEMI-FINISHED STEEL

Billets, Blooms and Slabs

Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham, Sparrows Point (Rerolling only). Prices delivered Detroit are $2 higher. F.o.b. Duluth, billets only, $2 higher.

	Per Gross Ton
Rerolling	$34.00
Forging quality	40.00

Sheet Bars

Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point, Md.

	Per Gross Ton
Open-hearth or bessemer	$34.00

Skelp

Pittsburgh, Chicago, Youngstown, Coatesville, Pa., Sparrows Point, Md.

	Per Lb.
Grooved, universal and sheared	1.90c.

Wire Rods

(No. 5 to 9/32 in.)

	Per Gross Ton
Pittsburgh, Chicago or Cleveland	$43.00
Worcester, Mass.	45.00
Birmingham	43.00
San Francisco	52.00

Rods over 9/32 in. or 47/64 in., inclusive, $5 a ton over base.

SOFT STEEL BARS

	Base per Lb.
Pittsburgh, Chicago, Gary, Cleveland, Buffalo and Birmingham	2.25c.
Detroit, delivered	2.35c.
Duluth	2.35c.
Philadelphia delivered	2.57c.
New York	2.59c.
On cars dock Gulf ports	2.60c.
On cars dock Pacific ports	2.85c.

RAIL STEEL BARS

(For merchant trade)

Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham	2.10c.
On cars dock Tex. Gulf ports	2.45c.
On cars dock Pacific ports	2.70c.

BILLET STEEL REINFORCING BARS

(Straight lengths as quoted by distributers)

Pittsburgh, Chicago, Gary, Birmingham, Buffalo, Cleveland, Youngstown or Sparrows Pt.	1.90c. to 2.05c.
Detroit, delivered	2.00c. to 2.15c.
On cars dock Tex. Gulf ports	2.25c. to 2.40c.
On cars dock Pacific ports	2.50c.

RAIL STEEL REINFORCING BARS

(Straight lengths as quoted by distributers)

Pittsburgh, Chicago, Gary, Buffalo, Cleveland, Youngstown or Birmingham	1.75c. to 1.90c.
Detroit, delivered	1.85c. to 2.00c.
On cars dock Tex. Gulf ports	2.10c. to 2.25c.
On cars dock Pacific ports	2.35c.

The above range in prices covers generally the spread between large and small jobs.

IRON BARS

Chicago and Terre Haute	2.15c.
Pittsburgh (refined)	3.60c.

COLD FINISHED BARS AND SHAFTING*

	Base per Lb.
Pittsburgh, Buffalo, Cleveland, Chicago and Gary	2.70c.
Detroit	2.75c.

* In quantities of 10,000 to 19,999 lb.

PLATES

	Base per Lb.
Pittsburgh, Chicago, Gary, Birmingham, Sparrows Point, Cleveland, Youngstown, Coatesville, Claymont, Del.	2.10c.
Philadelphia, del'd	2.15c.
New York, del'd	2.29c.
On cars dock Gulf ports	2.45c.
On cars dock Pacific ports	2.70c.
Wrought iron plates, P't'g	3.80c.

FLOOR PLATES

Pittsburgh or Chicago	3.35c.
New York, del'd	3.71c.
On cars dock Gulf ports	3.70c.
On cars dock Pacific ports	3.95c.

STRUCTURAL SHAPES

	Base per Lb.
Pittsburgh, Chicago, Gary, Buffalo, Bethlehem or Birmingham	2.10c
Philadelphia, del'd	2.215c.
New York, del'd	2.27c.
On cars dock Gulf ports	2.45c.
On cars dock Pacific ports	2.70c.

STEEL SHEET PILING

	Base per Lb.
Pittsburgh, Chicago or Buffalo	2.40c.
On cars dock Gulf ports	2.85c.
On cars dock Pacific ports	2.90c.

RAILS AND TRACK SUPPLIES

F.o.b. Mill

Standard rails, heavier than 60 lb., per gross ton	$42.50
Angle bars, per 100 lb	2.80

F.o.b. Basing Points

Light rails (from billets) per gross ton	$40.00
Light rails (from rail steel) per gross ton	39.00

	Base per Lb.
Spikes	3.15c.
Tie plates, steel	2.30c.
Tie plates, Pacific Coast ports	2.40c.
Track bolts, to steam railroads	4.35c.
Track bolts, to jobbers, all sizes (per 100 counts)	65-5 per cent off list

Basing points on light rails are Pittsburgh, Chicago and Birmingham; on spikes and tie plates, Pittsburgh, Chicago, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minnequa, Colo., Birmingham and Pacific Coast ports; on tie plates alone, Steelton, Pa., Buffalo; on spikes alone, Youngstown, Lebanon, Pa., Richmond, Va.

SHEETS

PRICES F.O.B. UNLESS OTHERWISE NOTED

Hot Rolled

	Base per Lb.
Pittsburgh, Gary, Birmingham, Buffalo, Sparrows Point, Cleveland, Youngstown or Middletown	2.15c.
Detroit, delivered	2.25c.
Philadelphia, delivered	2.32c.
Granite City	2.25c.
On cars dock Pacific ports	2.75c.
Wrought iron, Pittsburgh	4.25c.

Cold Rolled*

Pittsburgh, Gary, Buffalo, Youngstown, Cleveland or Middletown	3.20c.
Detroit, delivered	3.30c.
Granite City	3.30c.
Philadelphia, delivered	3.52c.
On cars dock Pacific ports	3.80c.

* Mill run sheets are 10c. per 100 lb. less than base; and primes only, 25c. above base.

Galvanized Sheets, 24 Gage

Pittsburgh, Gary, Sparrows Point, Buffalo, Middletown, Youngstown or Birmingham	3.50c.
Philadelphia, delv'd	3.67c.
Granite City	3.60c.
On cars dock Pacific ports	4.10c.
Wrought iron, Pittsburgh	6.10c.

Electrical Sheets

(*F.o.b. Pittsburgh*)

	Base per Lb.
Field grade	3.20c.
Armature	3.55c.
Electrical	4.05c.
Special Motor	4.95c.
Special Dynamo	5.65c.
Transformer	6.15c.
Transformer Special	7.15c.
Transformer Extra Special	7.65c.

Silicon Strip in coils—Sheet price plus silicon sheet extra width extras plus 25c. per 100 lb. for coils. Pacific ports add 70c. a 100 lb.

Long Ternes

No. 24 unassorted 8-lb. coating f.o.b. Pittsburgh or Gary	3.95c.
F.o.b. cars dock Pacific ports	4.65c.

Vitreous Enameling Stock, 20 Gage

Pittsburgh,, Gary Youngstown, Middletown or Cleveland	3.35c.
Detroit, delv'd	3.45c.
Granite City	3.45c.
On cars dock Pacific ports	3.95c.

TIN MILL PRODUCTS

Black Plate

Pittsburgh	3.15c.
Gary	3.15c.
Granite City	3.25c.
On cars dock Pacific ports, boxed	4.10c.

NOTE: No. 29 gage is heaviest in which tin mill black plate is sold. No. 28 and heavier taking sheet base. There are no gages which take the above base prices as extras are applicable in all cases.

Tin Plate

	Per Base Box
Standard cokes, Pittsburgh and Gary	$5.35
Standard cokes, Granite City	5.45

Special Coated Manufacturing Ternes

	Per Base Box
Pittsburgh	$4.65
Gary	4.65
Granite City	4.75

Roofing Terne Plate

(*F.o.b. Pittsburgh*)

(Per Package, 112 sheets, 20 x 28 in.)

8-lb. coating I.C.	$12.00
15-lb. coating I.C.	14.00
20-lb. coating I.C.	15.00
25-lb. coating I.C.	16.00
30-lb. coating I.C.	17.25
40-lb. coating I.C.	19.50

HOT ROLLED STRIP

Prices F.o.b. Unless Otherwise Noted

(*Widths up to 12 in.*)

	Base per Lb.
Pittsburgh, Chicago, Gary, Cleveland, Middletown, Youngstown or Birmingham	2.15c.
Detroit, delivered	2.25c.

Cooperage Stock

Pittsburgh & Chicago	2.25c.

COLD ROLLED STRIP*

	Base per Lb.
Pittsburgh, Youngstown or Cleveland	2.95c.
Chicago	3.05c.
Detroit, delivered	3.05c.
Worcester	3.15c.

* Carbon 0.25 and less.

Commodity Cold Rolled Strip

Pittsburgh, Youngstown or Cleveland	3.10c.
Detroit, delivered	3.20c.
Worcester	3.50c.

COLD ROLLED SPRING STEEL

		Pittsburgh and Cleveland	Worcester
Carbon	0.26-0.50%	2.95c.	3.15c.
Carbon	.51- .75	4.30c.	4.50c.
Carbon	.76-1.00	6.15c.	6.35c.
Carbon	1.01 to 1.25	8.35c.	8.55c.

WIRE PRODUCTS

(Carload lots, f.o.b. Pittsburgh, Chicago, Cleveland and Birmingham)

To Manufacturing Trade

	Per Lb.
Bright wire	2.60c.
Galvanized wire, base	2.65c.*
Spring wire	3.20c.

*On galvanized wire to manufacturing trade, size and galvanizing extras are charged, the price Nos. 6 to 9 gage, inclusive, thus being 3.15c.

To the Trade

	Base per Keg
Standard wire nails	$2.45
Coated nails	2.45
Cut nails, carloads	3.60

	Base per 100 Lb.
Annealed fence wire	$2.95
Galvanized fence wire	3.35
Polished staples	3.15
Galvanized staples	3.40
Barbed wire, galvanized	3.20
Twisted barbless wire	3.20
Woven wire fence, base column.	67
Single loop bale ties, base col...	56

Note: Birmingham base same on above items, except spring wire.

Add $4 a ton for Mobile, Ala.; $5 for New Orleans; $6 for Lake Charles to above bases except on galvanized and annealed merchant fence wire, which are $1 a ton additional in each case.

STEEL AND WROUGHT IRON PIPE AND TUBING

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

F.o.b. Pittsburgh only on wrought iron pipe.

Butt Weld

Steel			*Wrought Iron*		
In.	Black	Galv.	In.	Black	Galv.
⅛	56	36	¼ & ⅜	+9	+30
¼ to ⅜	59	43½	½	24	6½
½	63½	54	¾	30	13
¾	66½	58	1 & 1¼	34	19
1 to 3	68½	60½	1½	38	21½
			2	37½	21

Lap Weld

2	61	52½	2	30½	15
2½ & 3	64	55½	2½ to 3½	31½	17½
3½ to 6	66	57½	4	33½	21
7 & 8	65	55½	4½ to 8	32½	20
9 & 10	64½	55	9 to 12	28½	15
11 & 12	63½	54			

Butt Weld, extra strong, plain ends

⅛	54½	41½	¼ & ⅜	+10	+43
½ to ⅜	56½	45½	½	25	9
½	61½	53½	¾	31	15
¾	65½	57½	1 to 2	38	22½
1 to 3	67	60			

Lap Weld, extra strong, plain ends

2	59	51½	2	33½	18½
2½ & 63		55½	2½ to 4.39		25½
3½ to 66½		59	4½ to 6.37½		24
7 & 8	65½	56	7 & 8	38½	24½
9 & 10	64½	55	9 to 12	32	20½
11 & 12	63½	54			

On butt weld and lap weld steel pipe jobbers are granted a discount of 5%. On less-than-carload shipments prices are determined by adding 25 and 30% and the carload freight rate to the base card.

F.o.b. Gary prices are two points lower discount or $4 a ton higher than Pittsburgh or Lorain on lap weld and one point lower discount, or $2 a ton higher, on all butt weld 3 in. and smaller.

Boiler Tubes

Seamless Steel and Lap Weld Commercial Boiler Tubes and Locomotive Tubes. Minimum Wall.

(Net base prices per 100 ft. f.o.b. Pittsburgh in carload lots)

	Seamless Cold Drawn	Seamless Hot Rolled	Lap Weld Hot Rolled
1 in. o.d....13 B.W.G.	$ 9.01	$ 7.82	....
1¼ in. o.d...13 B.W.G.	10.67	9.26	....
1½ in. o.d...13 B.W.G.	11.79	10.23	9.72
1¾ in. o.d...13 B.W.G.	13.42	11.64	11.06
2 in. o.d....13 B.W.G.	15.03	13.04	12.38
2¼ in. o.d...13 B.W.G.	16.76	14.54	13.79
2¼ in. o.d...12 B.W.G.	18.45	16.01	15.16
2½ in. o.d...12 B.W.G.	20.21	17.54	16.58
2¾ in. o.d...12 B.W.G.	21.42	18.59	17.54
3 in. o.d....12 B.W.G.	22.48	19.50	18.35
3½ in. o.d...11 B.W.G.	28.37	24.62	23.15
4 in. o.d....10 B.W.G.	35.20	30.54	28.66
4½ in. o.d...10 B.W.G.	43.04	37.35	35.22
5 in. o.d.... 9 B.W.G.	54.01	46.87	44.25
6 in. o.d.... 7 B.W.G.	82.93	71.96	68.14

Extras for less carload quantities:

40,000 lb. or ft. or over	Base
30,000 lb. or ft. to 39,999 lb. or ft.	5%
20,000 lb. or ft. to 29,999 lb. or ft.	10%
10,000 lb. or ft. to 19,999 lb. or ft.	20%
5,000 lb. or ft. to 9,999 lb. or ft.	30%
2,000 lb. or ft. to 4,999 lb. or ft.	45%
Under 2,000 lb. or ft.	65%

CAST IRON WATER PIPE

Per Net Ton

*6-in. and larger, del'd Chicago.	$51.00
6-in. and larger, del'd New York	49.00
*6-in. and larger, Birmingham.	43.00
6-in. and larger, f.o.b. dock, San Francisco or Los Angeles	52.00
F.o.b. dock, Seattle	52.00
4-in. f.o.b. dock, San Francisco or Los Angeles	55.00
F.o.b. dock, Seattle	52.00

Class "A" and gas pipe, $3 extra 4-in. pipe is $3 a ton above 6-in.

Prices for lots of less than 200 tons. For 200 tons and over, 6-in. and larger is $42, Birmingham, and $50 delivered Chicago and 4-in. pipe, $45, Birmingham, and $54 delivered Chicago.

BOLTS, NUTS, RIVETS, SET SCREWS

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

Per Cent Off List

Machine and carriage bolts:	
½ in. & 6 in. and smaller.	65, 5 and 5*
Larger and longer up to 1 in.	60, 10 and 5*
1⅛ in. and larger	60, 5 and 5*
Lag bolts	60, 10 and 5
Plow bolts, Nos. 1, 2, 3 and 7	65, 5 and 5
Hot pressed nuts, and c.p.c. and t nuts, square or hex. blank or tapped:	
½ in. and smaller	65 and 5
9/16 in. to 1 in. inclusive.	65, 5 and 5
1⅛ in. and larger	60 and 5

* Less carload lots and less than full container quantity. Less carloads lots in full container quantity, an additional 10 per cent discount; carload lots and full container quantity, still another 5 per cent discount.

Semi-finished hexagon units, U.S.S. and S.A.E.:	
½ in. and smaller	60, 10 and 5
9/16 in. to 1 in. inclusive.	60, 5 and 5
⅛ in. and larger	60 and 5
Stove bolts in packages, nuts attached	75
Stove bolts in packages, with nuts separate	75 and 12½
Stove bolts in bulk	85

On stove bolts freight is allowed to destination on 200 lb. and over.

Large Rivets

(1½-in. and larger)

Base per 100 Lb.

F.o.b. Pittsburgh, Cleveland Chicago, Birmingham $3.40

Small Rivets

(17/16-in. and smaller)

Per Cent Off List

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham .... 65 and 10

Cap and Set Screws

(Freight allowed to destination)

Per Cent Off List

Milled hexagon head cap screws, 1 in. dia. and smaller	50 and 10
Milled square head set screws, case hardened, 1 in. dia. and smaller	75 and 10
Milled headless set screws, cut thread ¾ in. and smaller	70 and 10
Upset hex. head cap screws U.S.S. or S.A.E. thread 1 in. and smaller	67½ and 10
Upset set screws, cup and oval points	75 and 10
Milled studs	60½ and 10

Alloy and Stainless Steel

Alloy Steel Blooms, Billets and Slabs

F.o.b. Pittsburgh, Chicago, Canton, Massillon, Buffalo, Bethlehem. Base price, $56.00 a gross ton.

Alloy Steel Bars

F.o.b. Pittsburgh, Chicago, Buffalo, Bethlehem, Massillon or Canton.

Open-hearth grade, base	2.80c.
Delivered, Detroit	2.90c.

S.A.E. Series Numbers	Alloy Differential per 100 Lb.
2100 (1½% Nickel)	$0.35
2100 (1½% Nickel)	0.75
2300 (3½ Nickel)	1.55
2500 (5% nickel)	$2.25
3100 Nickel-chromium	0.70
3200 Nickel-chromium	1.85
3300 Nickel-chromium	3.80
3400 Nickel-chromium	3.20
4100 Chromium-molybdenum (0.15 to 0.25 Molybdenum)	0.55
4100 Chromium-molybdenum (0.25 to 0.40 Molybdenum)	0.75
4600 Nickel - molybdenum (0.20 to 0.30 Mo. 1.50 to 2.00 Ni)	1.10
5100 Chrome steel (0.60-0.90 Cr.)	0.35
5100 Chrome steel (0.80-1.10 Cr.)	0.45
5100 Chromium spring steel	0.15
6100 Chromium-vanadium bar	1.20
6100 Chromium-vanadium spring steel	0.85
Chromium-nickel-vanadium	1.50
Carbon-vanadium	0.85

These prices are for hot-rolled steel bars. The differential for most grades in electric furnace steel is 50c. higher. Slabs with a section area of 16 in. and 2½ in. thick or over take the billet base.

Alloy Cold-Finished Bars

F.o.b. Pittsburgh, Chicago, Gary, Cleveland or Buffalo, 3.40c. base per lb. Delivered Detroit, 3.50c., carlots.

CORROSION & HEAT RESISTANT ALLOYS

(Base prices, cents per lb., f.o.b. Pittsburgh)

Chrome-Nickel

	No. 304	No. 302
Forging billets	21.25c.	20.40c.
Bars	25c.	24c.
Plates	29c.	27c.
Structural shapes	25c.	24c.
Sheets	36c.	34c.
Hot-rolled strip	23.50c.	21.50c.
Cold-rolled strip	30c.	28c.
Drawn wire	25c.	24c.

Straight Chrome

	No. 410	No. 430	No. 442	No. 446
Bars	18.50c.	19c.	22.50c.	27.50c.
Plates	21.50c.	22c.	25.50c.	30.50c.
Sheets	26.50c.	29c.	32.50c.	36.50c.
Hot strip	17c.	17.50c.	23c.	28c.
Cold stp.	22c.	22.50c.	28.50c.	36.50c.

TOOL STEEL

High speed	67c.
High-carbon-chrome	43c.
Oil-hardening	24c.
Special	22c.
Extra	18c.
Regular	14c.

Prices for warehouse distribution to all points on or East of Mississippi River are 2c. a lb. higher. West of Mississippi quotations are 3c. a lb. higher.

British and Continental

BRITISH

Per Gross Ton
f.o.b. United Kingdom Ports

Ferromanganese, export	£20 Nominal
Tin plate, per base box	20s. 3d. to 21s. 6d.
Steel bars, open hearth	£11
Beams, open-hearth	£10 12s. 6d.
Channels, open-hearth	£10 17s. 6d.
Angles, open-hearth	£10 12s. 6d.
Black sheets, No. 24 gage	£13
Galvanized sheets, No. 24 gage	£16 15s.

CONTINENTAL

Per Gross Ton, Gold £.
f.o.b. Continental Ports

Billets, Thomas	Nominal
Wire rods, No. 5 B.W.G.	£5 10s.
Steel bars, merchant	£5 5s.
Sheet bars	Nominal
Plate ¼ in. and up	£5 7s.
Plate 3/16 in. and 5 mm.	£5 13s.
Sheets ⅛ in.	£5 9s. 6d.
Beams, Thomas	£4 18s.
Angles (Basic)	£4 18s.
Hoops and strip, base	£5 15s.

RAW MATERIALS PRICES

PIG IRON

No. 2 Foundry

F.o.b. Everett, Mass.	$21.75
F.o.b. Bethlehem, Birdsboro and Swedeland, Pa., and Sparrows Point, Md.	21.00
Delivered Brooklyn	23.50
Delivered Newark or Jersey City	22.53
Delivered Philadelphia	21.84
F.o.b. Neville Island, Erie, Pa., Toledo, Chicago and Youngstown*	20.00
F.o.b. Buffalo	20.00
F.o.b. Detroit	20.00
Southern, delivered Cincinnati	20.06
Northern, delivered, Cincinnati	20.44
F.o.b. Duluth	20.50
F.o.b. Provo, Utah	22.00
Delivered, San Francisco, Los Angeles or Seattle	26.95
F.o.b. Birmingham*	16.38

* Delivered prices on southern iron for shipment to northern points are 38c. a ton below delivered prices from nearest northern basing point on iron with phosphorus content of 0.70 per cent and over.

Malleable

Base prices on malleable iron are 50c. a ton above No. 2 foundry quotations at Everett, Eastern Pennsylvania furnaces, Erie and Buffalo. Elsewhere they are the same, except at Birmingham and Provo, which are not malleable iron basing points.

Basic

F.o.b. Everett, Mass.	$21.25
F.o.b. Bethlehem, Birdsboro, Swedeland and Steelton, Pa., and Sparrows Point, Md.	20.50
F.o.b. Buffalo	19.00
F.o.b. Neville Island, Erie, Pa., Toledo, Chicago and Youngstown	19.50
Delivered Philadelphia	21.34
Delivered Canton, Ohio	20.89
Delivered Mansfield, Ohio	21.44
F.o.b. Birmingham	15.00

Bessemer

F.o.b. Buffalo	$21.00
F.o.b. Everett, Mass.	22.75
F.o.b. Bethlehem, Birdsboro and Swedeland, Pa.	22.00
Delivered Newark or Jersey City	23.53
Erie, Pa., and Duluth	21.00
F.o.b. Neville Island, Toledo, Chicago and Youngstown*	20.50
F.o.b. Birmingham	21.00
Delivered Cincinnati	21.11
Delivered Canton, Ohio	21.89
Delivered Mansfield, Ohio	22.44

Low Phosphorus

Basing points: Birdsboro, Pa., Steelton, Pa., and Standish, N. Y.	$25.50

Gray Forge

Valley or Pittsburgh furnace	$19.50

Charcoal

Lake Superior furnace	$25.00
Delivered Chicago	28.34

Canadian Pig Iron

Per Gross Ton

Delivered Toronto

No. 1 fdy., sil. 2.25 to 2.75	$26.50
No. 2 fdy., sil. 1.75 to 2.25	25.50
Malleable	26.00
Basic	25.50

Delivered Montreal

No. 1 fdy., sil. 2.25 to 2.75	$27.50
No. 2 fdy., sil. 1.75 to 2.25	27.00
Malleable	27.50
Basic	27.00

FERROALLOYS

Ferromanganese

F.o.b New York, Philadelphia, Baltimore, Mobile or New Orleans.

Per Gross Ton

Domestic, 80% (carload) $92.50

Spiegeleisen

Per Gross Ton Furnace

Domestic 19 to 21%	$28.00
Domestic, 26 to 28%	33.00

Electric Ferrosilicon

Per Gross Ton Delivered; Lump Size

50% (carload lots, bulk)	$69.50*
50% (ton lots in 50 gal. bbl.)	80.50*
75% (carload lots, bulk)	126.00*
75% (ton lots in 50 gal. bbl.)	139.00*

Bessemer Ferrosilicon

F.o.b. Furnace, Jackson, Ohio

Per Gross Ton

10.00 to 10.50% $29.50

For each additional 0.50% silicon up to 12%, 50c. per ton is added. Above 12% add 75c. per ton.

For each unit of manganese over 2%, $1 per ton additional. Phosphorus 0.75% or over, $1 per ton additional.

Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Silvery Iron

Per Gross Ton

F.o.b. Jackson, Ohio, 5.00 to 5.50% $23.50

For each additional 0.5% silicon up to 12%, 50c. a ton is added. Above 12% add 75c. a ton.

The lower all-rail delivered price from Jackson or Buffalo is quoted with freight allowed. Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Manganese, each unit over 2%, $1 a ton additional. Phosphorus 0.75% or over, $1 a ton additional.

Ferrochrome

Per lb. Contained Cr., Delivered Carlots, Lump Size, on Contract

4 to 6% carbon	10.50c.*
2% carbon	16.50c.*
1% carbon	17.50c.*
0.10% carbon	19.50c.*
0.06% carbon	20.00c.*

Silico-manganese

Per Gross Ton, Delivered, Lump Size, Bulk, on Contract

3% carbon	$92.75
2.50% carbon	97.75
2% carbon	102.75
1% carbon	112.75

Other Ferroalloys

Ferrotungsten, per lb. contained W del., carloads, nominally	$2.00
Ferrotungsten, lots of 500 lbs. nominally	2.05
Ferrotungsten, smaller lots, nominally	2.10
Ferrovanadium, contract, per lb. contained V., delivered	$2.70 to $2.90†
Ferrocolumbium, per lb. contained columbium, f.o.b. Niagara Falls, N. Y., tons lots.	$2.25†
Ferrocarbontitanium, 15 to 18% Ti, 7 to 8% C, f.o.b. furnace carload and contract per net ton	$142.50
Ferrocarbontitanium, 17 to 20% Ti, 3 to 5% C, f.o.b. furnace, carload and contract, per net ton	$157.50
Ferrophosphorus, electric or blast furnace material, in carloads, f.o.b. Anniston, Ala., for 18%, with $3 unitage, freight equalized with Rockdale, Tenn., per gross ton	$58.50
Ferrophosphorus, electrolytic, 23-26% in car lots, f.o.b. Monsanto (Siglo), Tenn., 24%, per gross ton, $3 unitage, freight equalized with Nashville	$75.00
Ferromolybdenum, per lb. Mo. f.o.b. furnace	95c.
Calcium molybdate, per lb. Mo. f.o.b. furnace	80c.

*Spot prices are $5 per ton higher †Spot prices are 10c. per lb. of contained element higher.

ORES

Lake Superior Ores

Delivered Lower Lake Ports

Per Gross Ton

Old range, Bessemer, 51.50%	$5.25
Old range, non-Bessemer, 51.50%	5.10
Mesabi, Bessemer, 51.50%	5.10
Mesabi, non-Bessemer, 51.50%	4.95
High phosphorus, 51.50%	4.85

Foreign Ore

C.i.f. Philadelphia or Baltimore

Per Unit

Iron, low phos., copper free, 55 to 58% dry, Algeria, nominal.	17.00c.
Iron, low phos., Swedish, average, 68½% iron. Nominally 17 to 18c.	
Iron, basic or foundry, Swedish, aver. 65% iron. Nominally 15c.	
Iron, basic or foundry, Russian, aver. 65% iron	Nominal
Man., Caucasian, washed 52%	35c.
Man., African, Indian 44-48%	33c.
Man., African, Indian, 49-51%	35c.
Man., Brazilian, 46 to 48½%	33c.

Per Short Ton Unit

Tungsten, Chinese, Wolframite, duty paid, delivered	$20.00
Tungsten, domestic, scheelite delivered	$20.00 to 21.00
Chrome ore (lump) c.i.f. Atlantic Seaboard, per gross ton: South African (low grade)	15.00
Rhodesian, 45%	20.00
Rhodesian, 48%	23.50
Turkish, 48-49%	24.00 to 25.00
Turkish, 45-46%	22.50 to 23.00
Turkish, 44%	18.00 to 18.50
Chrome concentrates (Turkish) c.i.f. Atlantic Seaboard, per gross ton: 50%	24.50 to 25.50
48-49%	24.50 to 25.00

FLUORSPAR

Per Net Ton

Domestic washed gravel, 85-5, f.o.b. Kentucky and Illinois mines, all rail	$18.00
Domestic, f.o.b. Ohio River landing barges	18.00
No. 2 lump, 85-5, f.o.b. Kentucky and Ill. mines.	$18.00 to 19.00
Foreign, 85% calcium, fluoride, not over 5% silicon, c.i.f. Atlantic ports, duty paid	24.50
Domestic No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silicon, f.o.b. Illinois and Kentucky mines	31.50

FUEL OIL

Per Gal.

No. 2 or diesel, f.o.b. Bayonne	4.00c.
No. 6, f.o.b. Bayonne	2.26c.
Del'd Chicago, No. 5 Bur. Stds.	3.25c.
Del'd Chicago, No. 6 Bur. Stds.	2.75c.
Del'd Cleve'd, No. 3 distillate	5.50c.
Del'd Cleve'd, No. 4 industrial	5.00c.
Del'd Cleve'd, No. 5 industrial	3.25c.
Del'd Cleve'd, No. 6 industrial	3.00c.

COKE

Per Net Ton

Furnace, f.o.b. Connellsville, Prompt	$3.75
Foundry, f.o.b. Connellsville, Prompt	$4.75 to 5.50
Foundry, by-product, Chicago ovens	10.25
Foundry, by-product, del'd New England	12.50
Foundry, by-product, del'd Newark or Jersey City	10.88 to 11.40
Foundry, by-product, Philadelphia	10.95
Foundry, by-product, delivered Cleveland	10.30
Foundry, by-product, delivered Cincinnati	9.75
Foundry, Birmingham	7.50
Foundry, by-product, del'd St. Louis industrial district	10.75 to 11.00
Foundry, from Birmingham, f.o.b. cars dock, Pacific ports	14.75

New Freighter Has Cargo Tanks Lined With Nickel

CHICAGO.—What is said to be the first freighter with nickel cargo tanks docked at East Chicago, Ind., recently with a bulk cargo of kerosene. Containing 40 miles of welding, 1200 lb. of welding wire and 61,000 lb. of nickel in sheet and strip form, this twin-screw diesel ship costs about $500,000 to build, is made of electrically welded steel channels bent to form the main structure, and has no rivets. Automatic welding was used on most of the vessel, but the sheet nickel which lines the bulkhead cargo tanks was spot welded to the frame and arc welded on the seams.

Built and operated by the Dolomite Marine Corp., Rochester, N. Y., the Dolomite IV, as the new vessel was named, is 300 ft. long, has a beam of 43 ft. 4 in. and a gross tonnage of 5500. She was constructed for the bulk transportation of caustic soda and other highly corrosive chemicals.

The utility of this type of ship lies in the fact that a quick switch can be made from wet to dry cargo or vice versa. The nickel lining is expected to make this possible. When the kerosene cargo was discharged at Chicago the nickel lining was subjected to a steam bath which removed all vestiges of that liquid. It was the intention to pick up a grain cargo at Chicago, but owing to the fact that it was necessary to complete some construction, the boat departed for Oswego for another cargo of kerosene.

It is believed that the new ship will solve a transportation problem on the Great Lakes in its ability to make a quick shift from one type of cargo to another, with no injury to the cargo space being suffered from such materials as caustic soda and corrosive chemicals.

Hunter Steel Plans to Manufacture Ingot Molds

HUNTER STEEL CO., Pittsburgh fabricating concern, will soon manufacture ingot molds, if the recommendation of the Pittsburgh Coke & Iron Co., which recently acquired 47 per cent of the Hunter common stock, is carried through. Pittsburgh Coke & Iron Co. maintains a merchant blast furnace and coke plant at Neville Island, Pa., close to the Hunter Steel Co. plant.

The recommendation by the Pittsburgh Coke & Iron Co. that the present business of Hunter Steel be expanded and diversified and that the company, in addition to engaging in its present business, manufacture other products such as ingot molds, has met with the approval of the Hunter company's board of directors, who, in a special letter to stockholders, have recommended acceptance of the proposal.

Armco Passes Dividend On Preferred Shares

AMERICAN ROLLING MILL CO., Middletown, Ohio, has omitted the quarterly dividend on its 4.5 per cent preferred stock. A statement by the company's directors said:

"Because of losses before preferred dividend during the first six months and the continuing losses at present, together with present business conditions, no action on the preferred dividend was justified at this time."

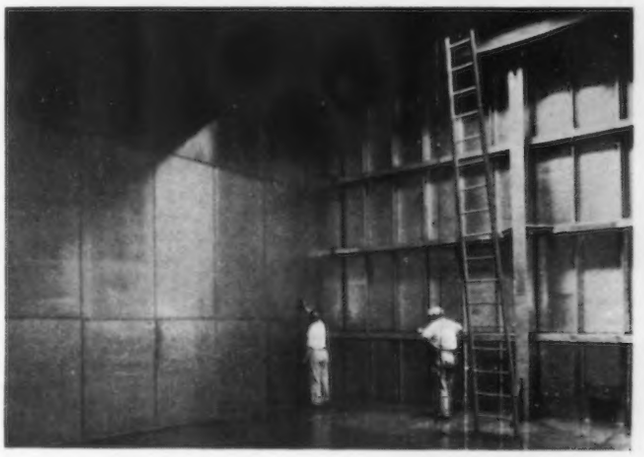
BELOW

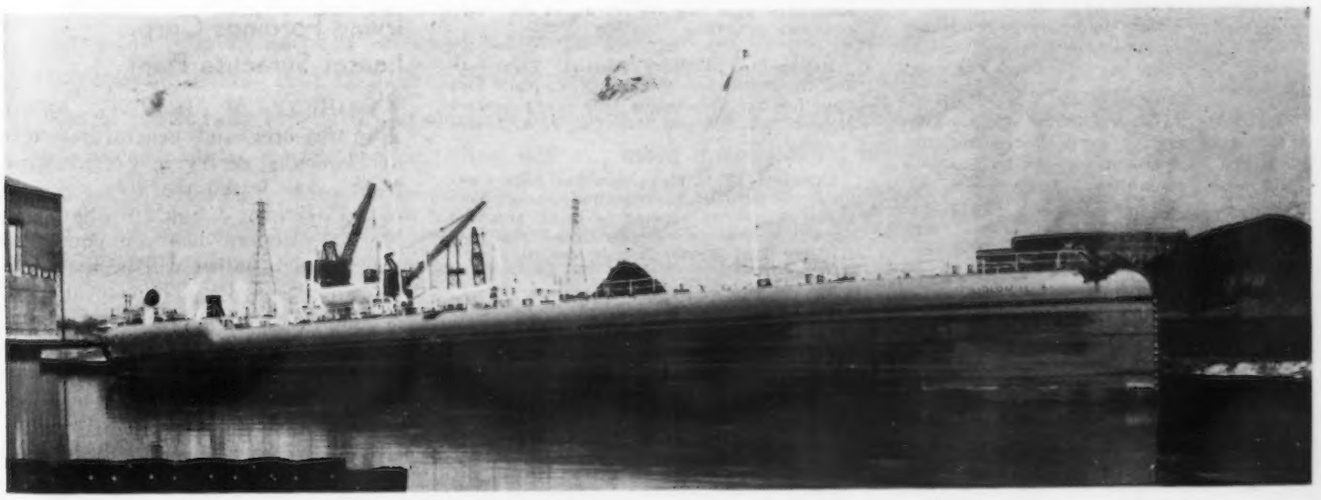
THE Dolomite IV, an all-welded 300-ft. freighter whose holds are nickel-clad.

o o o

AT RIGHT

INTERIOR view of a hold lined with pure nickel sheets. Rapid steam cleaning permits the carrying of a widely diversified cargo.





THIS WEEK'S MACHINE . . .TOOL ACTIVITIES. . .

Greater Activity Expected in Detroit After Labor Day

DETROIT—After the Labor Day holiday, it is generally expected, there will be a resumption of activity in many plants. More specifically, it is anticipated that the final ironing out of difficulties in connection with new model production will free many master mechanics so they can begin active preparation for 1940 model changes. Meanwhile rumors persist that new light cars are in the offing. Hupmobile has announced that it will produce such lines before the year is out, and the development of four-cylinder cars at Studebaker and Graham are reported to be under way. Purchase orders given to the Wagner Electric Co., Bendix Aviation Co., Kelsey-Hayes and Budd Wheel Co. have started them making preparations to manufacture parts for Ford hydraulic brakes for 1939 models. Orders for some of the other parts of the brake assembly have not yet been placed. Activity has been under way for some time in these plants to prepare these orders, but it is indicated that there will be more tooling and machinery necessary.

Upward Trend Continues In Sales and Inquiries

NEW YORK—Further evidence of better buying on the part of general industry has been added to that reported last week. An electric motor manufacturer bought several machine tools last week, and this is believed to be the first purchase made by this concern this year. A similar move was made by a much larger manufacturer in similar lines the week before. All signs point to a further rise in buying after Labor Day. This new business is coming from only a few sources, and is necessarily spotty as far as the sellers are concerned. The aircraft engine builder in Paterson continues to be the largest purchaser, and in recent weeks has stepped up the buying pace in furtherance of an expansion plan. Navy budget requirements for 1938-39 are said to be determined, as regards machine tools, and the next move indicated is the issuance of formal specifications against which bids will be called in the next month or so.

Japanese business is in the offing. Tentative orders have been placed and are awaiting government permits to establish the necessary credits.

Chicago Trade Considers Long-Range Outlook Good

CHICAGO—Small tool buying and inquiries are better, but the improvement is very slight. The increased interest in machinery comes from large plants mostly and is for heavy equipment. A seller with several national lines reports more prospects in the East than in this area, which may be due to the greater effect there of Federal purchasing. The long-range outlook remains good with the after Labor Day period being considered as a turning point.

Sales Dip at Cincinnati; Rebound Is Expected Soon

CINCINNATI—The machinery demand curve in this area dipped the past week under influence of lower lathe purchasing. Other tools were about on a parity with the preceding week, but lathes eased about one-third of the previous totals. The fluctuation is causing no alarm, however, since manufacturers report no apparent permanency in factors causing the dip. The number of outstanding quotations and a steady interest by way of inquiry are sustaining the potential market. In fact, the trade feels that a rebound to previous levels or even higher is a strong probability. Optimism is further justified by the fact that for the second consecutive week, domestic ordering has moved upward a shade. This, however, has not yet outbalanced the steady foreign ordering, but does give a healthful feature to the market.

Production is unchanged. Some plants are still running night shifts to keep abreast of orders.

Machine Tool Sales Slump in Cleveland Area

CLEVELAND — Inquiries for machine tools in the northern Ohio district have fallen off sharply during the past week, apparently due to a desire on the part of prospective buyers to hold off until it can be seen what the early part of September will bring. Sales offices and producers are not seriously concerned over the slump, and continue confident that acceleration will come in a few more weeks.

....PIPE LINES....

Taxman Brothers, Wichita Falls, Tex., plan 4-in. welded steel pipe line from K.M.A. oil field in southwestern part of Wichita County to oil refinery near Wichita Falls, about 15 miles, for crude oil transmission. Also will install a steel pipe line gathering system in oil district noted, with pumping station. H. W. Royster has secured a large financial interest in Taxman company, which is resuming operations at refinery after shut-down for eight months.

McMurray Refining Co., Tyler, Tex., Marvin McMurray, head, has authorized immediate construction of 5½-in. welded steel pipe line between company oil refineries at Arp and Tyler, close to 16 miles, for crude oil transmission. Pumping facilities will be installed for service between two points noted.

Board of Public Works, Seattle, has low bid from Commercial Boiler Works, Inc., 53 West Lander Street, at $13,923 for two 72-in. steel pipe lines, steel trash racks and trash rack guides for Ruby Dam.

Quartermaster, Army and Navy General Hospital, Hot Springs National Park, Ark., asks bids until Sept. 15 for 700 lin. ft. of galvanized steel pipe and 500 lin. ft. of steel pipe (Circular 400-2).

Metropolitan Utilities District, Eighteenth and Harney Streets, Omaha, Neb., plans pipe lines for gas distribution in recently created districts Nos. 853 and 854. Col. J. A. Leisen is secretary.

Lampassas, Tex., plans municipal butane gas plant and pipe line distributing system. Cost about $65,000. Financing is being arranged through Federal aid. Joseph J. Rady, Majestic Building, Fort Worth, Tex., is consulting engineer.

Tennessee Valley Authority, Knoxville, Tenn., has awarded contract to Chicago Bridge & Iron Works, Chicago, for two steel penstock liners for Hiawassee hydroelectric power plant, at $23,162.00 each.

Ford, Bacon & Davis, Inc., 39 Broadway, New York, consulting engineer, is in charge of project sponsored by certain chemical companies at Niagara Falls, N. Y., and salt-producing interests, for construction and operation of a pipe line from vicinity of Linden, N. Y., in salt field area of Wyoming County, to Niagara Falls, about 60 miles, for transmission of brine, for use as raw material for different chemical plants at latter place, replacing primarily rock salt now shipped to that destination by rail and water. New line will be of special brine-resisting metal pipe, and engineer noted has research under way to determine exact character of pipe to be used. Negotiations for right of way for line are in progress. Entire project will cost close to $2,000,000.

Pacific Bridge Co., San Francisco, submitted only bid to United States Government for constructing pipe line between that city and Alcatraz Island.

Prado Dam, Riverside County, Cal., will require 230 tons miscellaneous black steel pipe. Construction bids to United States Engineer, Los Angeles, Sept. 19.

Sandusky, Ohio, will take bids Sept. 7 on 275 to 500 tons of 24-in. cast iron or steel pipe, amount depending on material chosen, and also will take bids Sept. 8 on 1000 to 2000 tons of 42-in. cast iron, concrete or steel pipe for a water intake.

Irving Forgings Corp. Leases Syracuse Plant

ROBERT M. IRVING, former treasurer and general manager of Hammond & Irving Co., Auburn, N. Y., has leased the forging plant of C. C. Bradley & Son, Inc., Syracuse, N. Y. Modern hammer equipment now being installed will be ready for operation Sept. 19. The company will be known as the Irving Forgings Corp. and will manufacture a complete line of weldless rings, blocks, gear blanks, spindles and special shape forgings from all standard S.A.E. steels, tool steels, stainless steel, monel metal and bronze.

It's A Tough Life . . .
BUT TEETH THAT BITE

• Cutting metal . . . forcing steel through steel . . . is a saw blade's toughest assignment. When you get a blade that can't "take it" on such work, production schedules suffer . . . there is too much time out for changing blades . . . and too many blade purchase orders per job.

Save the time and money losses of too much time out for blade changes by specifying Atkins Blue End Hack Saw Blades. They combine the advantages of ***teeth that bite*** with the stamina found only in Silver Steel. That's why we're able to guarantee that they will cut more metal easier, faster and better than any other blade you can buy. It also explains why hack saw users who once experience the speedy, effortless performance of ***teeth that really bite*** . . . their ability to operate for long periods on metal that other blades will not touch . . . quickly get into the habit of saying, "Atkins Blue Ends."

E. C. ATKINS AND COMPANY, **406 S. Illinois St., Indianapolis, Indiana**

TEETH THAT BITE

ATKINS

Silver Steel

SAWS

CERTIFIED SAWS, SAW TOOLS, MACHINE KNIVES, ETC.

PLANT EXPANSION AND EQUIPMENT BUYING

NORTH ATLANTIC

American Can Co., 230 Park Avenue, New York, has leased part of former No. 2 plant of J. L. Mott Iron Works, Trenton, N. J., recently purchased by Stokely Brothers & Co., 2002 South East Street, Indianapolis, food canner and packer, and will remodel and equip for new branch plant. New unit will be operated in conjunction with large canning plant to be established by Stokely company at that location, which is now awarding contracts for modernizing and improving buildings. Facilities will be installed for employment of over 500 persons. E. C. Eberts is vice-president in charge of engineering for last noted company.

Contracting Officer, Office of Chief of Engineers, Munitions Building, Washington, asks bids until Sept. 8 for 340 wire reels (Circular 8) for Brooklyn yard.

Hegeman-MacCormack, Inc., 420 Lexington Avenue, New York, lubricating oils, has leased one-story industrial building at 45-20 Thirty-eighth Street, Long Island City, and will occupy for new plant for compounding, storage and distribution.

Westchester Boat Yards, Inc., Rye, N. Y., recently organized by Eugene M. Heiney and Arthur J. Schwartz, has acquired former local plant of Milton Boat Yards, Inc., held by State Insurance Department, and will improve and occupy for plant.

Commanding Officer, Ordnance Department, Watervliet Arsenal, Watervliet, N. Y., asks bids until Sept. 6 for quantity of alloy steel rail forgings (Circular 22); until Sept. 9 for one 2½-in. turret lathe (Circular 21); until Sept. 14 for one plain hydraulic cylindrical grinding machine (Circular 17).

Yonkers Electric Light & Power Co., Yonkers, N. Y., plans extensions and improvements in power station on Point Street, and will make additions and improvements in lines in different parts of city. Cost over $100,000.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Sept. 6 for one motor-driven universal cutter and reamer grinder (Schedule 4252), one motor-driven milling machine (Schedule 4258), one motor-driven horizontal beam bender and straightener machine (Schedule 4255), two motor-driven precision lathes (Schedule 4257); until Sept. 9 for four steel flasks (Schedule 4289), five motor-driven, light-duty engine lathes (Schedule 4282) for Brooklyn Navy Yard; until Sept. 6 for motor-driven turbine pumping units and spare parts (Schedule 4242); until Sept. 9 for turbine-driven centrifugal pumps (Schedule 4264) for Brooklyn and Philadelphia yards.

United States Industrial Alcohol Co., 60 East 42nd Street, New York, has work under way on new plant unit at works at Curtis Bay, Baltimore, to be equipped for production of cellulose acetate, with initial capacity over 500,000 lbs. per annum. Cost over $500,000 with equipment. Completion is scheduled by end of year.

Quartermaster, Fort Totten, Staten Island, New York, asks bids until Sept. 6 for 14,000 lin. ft. of rubber-insulated cable and 86 street-lighting standards (Circular 913-7).

Quartermaster, West Point, N. Y., asks bids until Sept. 6 for armored parkway cable, cable terminals and motor-starter (Circular 1052-25).

Draft-Rite Corp., 11 Lafayette Street, Newark, N. J., manufacturer of beer-cooling equipment and kindred products, has leased one-story industrial building at 50 Walnut Street, and will occupy for plant, removing present works to that location and increasing capacity.

Commanding Officer, Ordnance Department, Picatinny Arsenal, near Dover, N. J., asks bids until Sept. 6 for two automatic, multiple-spindle screw machines, 2⅝-in. capacity (Circular 148), 500 parachute assemblies for 17-lb. bomb practice (Circular 134); until Sept. 8 for quantity of metal parts for assemblies for 1100-lb. demolition bombs (Circular 94), quantity of metal parts for assemblies for 600-lb. demolition bombs (Circular 95), quantity of metal parts for assemblies for 100-lb. demolition bombs (Circular 96); until Sept. 12 for 6300 galvanized steel carriage bolts (Circular 111); until Sept. 15 for reworking 15,000 lbs. of brass turnings (Circular 133).

Bryant Air-Conditioning Corp., 830 North Broad Street, Philadelphia, has leased building at 915-17 North Front Street, about 18,000 sq. ft. of floor space, and will occupy for plant.

Scott Paper Co., Chester, Pa., has engaged Stone & Webster Engineering Corp., 49 Federal Street, Boston, consulting engineer, to prepare plans and supervise erection of new addition to mill, to occupy former site of Alpha Boat Club. A new paper-making machine and auxiliary equipment will be installed to increase present capacity 15 per cent. Completion is scheduled next spring. Cost about $3,000,000 with machinery.

Commanding Officer, Ordnance Department, Frankford Arsenal, Philadelphia, asks bids until Sept. 7 for one horizontal shell-turning machine (Circular 141), one 24-in. geared-head lathe (Circular 142), 12,000 die castings, zinc base, for closing plugs (Circular 145).

BUFFALO DISTRICT

Linde Air Products Co., 30 East 42nd Street New York, has authorized resumption of construction of new three-story plant building on large tract of land at Sheridan Drive and Woodward Avenue, Tonawanda, N. Y., on which work was begun last summer and discontinued in November. This is initial unit of group of structures on that site, with ultimate cost of about $1,500,000 with equipment. John W. Cowper Co., Inc., Sidway Building, Buffalo, is general contractor. Company is a subsidiary of Union Carbide & Carbon Corp., first noted address.

Utica Radiator Corp., Utica, N. Y., manufacturer of steam and vapor radiators, parts, etc., has leased former foundry of Central Radiator Co., Lansdale, Pa., and will remodel and equip for new factory branch, storage and distributing plant.

NEW ENGLAND

Commanding Officer, Ordnance Department, Springfield Armory, Springfield, Mass., asks bids until Sept. 15 for one 30-ton capacity hydraulic press (Circular 33).

Globe Slicing Machine Co., Inc., 450 Whitlock Avenue, New York, has plans for new one-story plant on Selleck Street, Stamford, Conn. Cost close to $50,000 with equipment. Award for structural steel framing has been made to Belmont Iron Works, Twenty-second Street and Washington Avenue, Philadelphia. Leo F. Caproni, 1221 Chapel Street, New Haven, Conn., is architect and engineer.

Pocahontas Fuel Co., Statler Building, Boston, plans new power house at plant at Portland, Me. Cost close to $50,000 with equipment. Fay, Spofford & Thorndike, 11 Beacon Street, Boston, are consulting engineers.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Sept. 6 for three motor-driven plain grinding machines (Schedule 4259); until Sept. 9 for one universal grinding machine (Schedule 4267), one motor-driven lapping machine (Schedule 4281), one molding machine (Schedule 4280) for Newport, R. I., Naval Station; until Sept. 13 for main lubricating oil, fuel oil booster and fuel oil service pumps, and spare parts (Schedule 4243) for Boston, Charleston and Puget Sound, Wash., Navy yards.

Quartermaster, Fort Ethan Allen, Vt., asks bids until Sept. 6 for one steam boiler unit (Circular 107-8).

WASHINGTON DIST.

Purchasing and Contracting Officer, Holabird Quartermaster Depot, Baltimore, asks bids until Sept. 19 for quantity of automobile parts and equipment, including brake equipment, hubs, hand brakes, air and oil gages, steering gears, cable, valves, pipe, gears, lubricating guns and other equipment (Circular 398-12).

Virginia Electric & Power Co., Richmond, Va., plans addition to steam-electric generating plant on Twelfth Street, including installation of new 40,000-kw. steam turbo-generator unit and accessories, boiler and auxiliary equipment, to increase station rating to over 100,000-kw. Completion is scheduled early in 1940. Cost about $3,000,000 with machinery.

United States Engineer Office, Navy Building, Washington, asks bids until Sept. 6 for quantity of hot galvanized hook bolts (Circular 9).

Bureau of Yards and Docks, Navy Department, Washington, asks bids (no closing date stated) for new trade school at naval training station, Norfolk, Va. Work will be carried out in conjunction with other buildings at station, for which bids will be received at same time (Specifications 8837).

Coca-Cola Bottling Co. of Baltimore, Inc., 12 South Front Street, Baltimore, has asked bids on general contract for new one-story mechanical-bottling plant at Kirk Street and Exeter Hall Avenue. Cost over $65,000 with equipment. Jesse M. Shelton, Bona Allen Building, Atlanta, Ga., is architect and engineer.

National Bureau of Standards, Washington, asks bids until Sept. 8 for one hydraulic floor type testing machine, suitable for compression and transverse testing, with capacity of 400,000 lbs. in compression; and alternate bids for a similar machine with capacity of 600,000 lbs. in compression.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Sept. 6 for one motor-driven metal-cutting saw (Schedule 4256) for Charleston, S. C., Navy Yard; until Sept. 9 for one motor-driven turret lathe (Schedule 4276), two motor-driven turret lathes (Schedule 4279), two motor-driven turret lathes (Schedule 4284), for Alexandria, Va., yard; one motor-driven tool-room precision lathe, with cabinet (Schedule 4287) for Washington yard; until Sept. 13 for quantity of lead-sheathed electric cable (Schedule 4299) for Anacostia, D. C.

SOUTH CENTRAL

Magnolia Petroleum Co., Magnolia Building, Dallas, Tex., has acquired large tract of land on Mississippi River near Chalmette Slip, New Orleans, La., totaling over 20 acres, as site for new bulk oil storage and distributing plant, to include battery of steel tanks, pumping station, group of buildings and facilities for handling barge shipments.

Director of Purchases, Tennessee Valley Authority, Knoxville, Tenn., asks bids until Sept. 7 for diesel locomotive crane and clamshell bucket for handling phosphate rock, muck and coke breeze; crane to have a 50-ft. boom and be capable of lifting total load of 10,000 lbs. at a radius of 47½ ft., without outriggers; clamshell bucket to have a water line capacity of not less than 30 cu. ft.; until Sept. 8 for steel frame superstructure for Chickamauga power plant, totaling about 780 tons of structural steel.

Leggett & Platt Spring Bed Mfg. Co., 117 North Fifth Street, Louisville, plans rebuilding of portion of plant on Maple Street, recently damaged by fire. Loss close to $30,000 with equipment.

John R. Steed & Son, Lake Charles, La., canners and packers of seafood products, have let general contract to H. M. Knapp, Lake Charles, for new one-story plant on Front

• USE LANDIS GRINDERS •

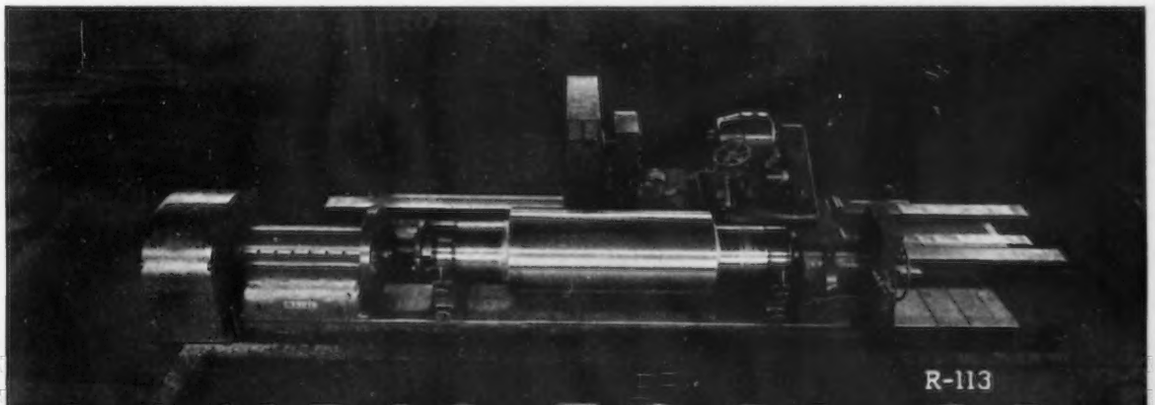
An EXCELLENT VIEW

R-113

Obviously it is not possible for us to promote your interest in Landis Type 30 Roll Grinders by placing one on your desk for inspection. An alternative is the photographic presentation on this page.

This view of a Landis 60" x 312" Type 30 Roll Grinder is a good one. It shows in miniature just what you would see if you were right out in the mill where it is used. Unfortunately we cannot picture the satisfaction of the user of this machine and the many others of like type now in operation.

Our representative is anxious to tell you about this if he is given the opportunity. At the same time, he will discuss with you the reasons why the Landis Type 30 Roll Grinder is the choice of so many mills today. No. 250



R-113

LANDIS TOOL CO.

WAYNESBORO, PENNA., U. S. A.

Street, near Broad Street. Cost close to $50,000 with equipment. I. C. Carter, Lake Charles, is architect.

SOUTH ATLANTIC

Water Bureau, Atlanta, Ga., plans extensions and improvements in River and Hemphill waterworks stations, including installation of motor-driven pumping units and accessories, boilers and other equipment. Cost about $475,000. Financing has been arranged in part through Federal aid.

Board of Education, Sylvester, Ga., plans installation of a vocational training department in new one-story and basement high school, for which bids will be asked soon. Cost about $100,000. Financing has been arranged through Federal aid.

City Council, Greenville, N. C., plans extensions and improvements in municipal electric power plant, including installation of new 5000-kw. turbo-generator unit and auxiliary equipment. Cost about $375,000, of which $168,545 has been secured through Federal grant.

WESTERN PA. DIST.

Sharon Steel Corp., Sharon, Pa., plans one-story addition, 50 x 65 ft. Cost close to $85,000 with equipment. Company also has work nearing completion on new mill unit to be used for production of a new byproduct, an insulation block made from spent pickling liquor, and will place in operation early in fall.

West Virginia Equipment Co., New Cumberland, W. Va., recently organized to manufacture steel automobile parts and blanks, has taken over former local pottery of Cronin China Co., and will improve and equip at once for plant.

Potomac Edison Co., Hagerstown, Md., has engaged Sanderson & Porter, 52 William Street, New York, consulting engineers, to prepare plans and supervise rebuilding of hydroelectric generating plant on Shenandoah River, near Millville, W. Va., recently destroyed by fire, caused by lightning, with loss of about $250,000.

OHIO AND INDIANA

Westinghouse Electric Supply Co., 3950 Prospect Avenue, Cleveland, has leased space in building at 6545 Carnegie Avenue, S.E., totaling 34,000 sq. ft. of floor space, and will occupy for new storage and distributing plant, removing to new location early next year and expanding present facilities. Company also has taken option to lease 16,000 sq. ft. of additional space in same building, effective October, 1939.

Advance Die & Tool Co., 6701 Pear Avenue, Cleveland, has let general contract to Gillmore-Carmichael-Olson Co., 1873 East Fifty-fifth Street, for one-story addition, 55 x 160 ft. Cost over $65,000 with equipment.

Superintendent of Lighthouses, Buffalo, N. Y., asks bids until Sept. 14 for new one-story equipment storage and depot building at U. S. Lighthouse Reservation, Bay View Park, Toledo, Ohio (Circular 3789).

Old Fort Mills, Inc., Marion, Ohio, manufacturer of soy bean and grain products, plans one-story branch plant, 80 x 240 ft., for processing soy beans, grinding and other production operations. Cost over $70,000 with equipment.

Van Buren Township Board of Education, Dayton, Ohio, care of R. T. Parrish, 127 Cambridge Avenue, architect, will take bids soon on general contract for one-story addition to Fairmount high school, to be equipped as a vocational shop. Cost about $50,000.

Contracting Officer, Materiel Division, Air Corps, Wright Field, Dayton, Ohio, asks bids until Sept. 6 for quantity of flexible hose assemblies (Circular 92); until Sept. 15 for 36 manometer assemblies and 24 airspeed indicator assemblies (Circular 93).

Lynch Corp., Anderson, Ind., manufacturer of machinery for glass production, parts, etc., has purchased local foundry division of former Anderson Engine & Foundry Co., whose plant was sold recently at a receiver's sale. New owner will use for expansion in foundry department for production of castings for glass-making machinery.

Contracting Officer, Quartermaster Corps, Jeffersonville, Ind., asks bids until Sept. 7 for quantity of halter bolts, bridle buckles, stud hooks, etc. (Circular 431-32).

SOUTHWEST

Lincoln Engineering Co., 5701 Natural Bridge Avenue, St. Louis, manufacturer of lubricating equipment, parts, etc., has let general contract to Hercules Construction Co., 8808 Ladue Road, for one-story addition, 200 x 200 ft., for storage and distribution. Cost over $60,000 with equipment.

Board of Education, Neodesha, Kan., plans one-story addition to school, 100 x 169 ft., to be equipped primarily as a vocational department. Cost about $100,000. R. J. Hamilton, Brown Building, Wichita, Kan., is architect.

Quartermaster, Army and Navy General Hospital, Hot Springs National Park, Ark., asks bids until Sept. 15 for quantity of globe valves, angle valves, unions, elbows, steel conduit, etc. (Circular 400-2).

Board of Public Works, St. Joseph, Mo., plans one-story shop and industrial building for repair, maintenance and storage of highway equipment. Cost close to $35,000 with equipment. R. V. Land is city engineer.

Grand River Dam Authority, City Hall, Vinita, Okla., R. V. L. Wright, general manager, plans hydroelectric power development on Grand River, near Salina, Okla., including power dam across river at Markham's Ferry, generating station, transmission lines, power substation and switching stations, and other operating structures. Cost about $4,500,000, of which $2,025,000 is being arranged through Federal grant. Holway & Neuffer, 302 East Eighteenth Street, Tulsa, Okla., are consulting engineers.

Coca-Cola Bottling Co., Austin Avenue and Twelfth Street, Waco, Tex., has let general contract to C. C. Ramsey, Waco, for new one-story mechanical bottling plant, with storage and distributing facilities. Cost over $85,000 with machinery, including conveying, loading and other mechanical-handling equipment.

City Council, Baird, Tex., plans new municipal electric light and power plant, using diesel engine-generating units. Cost about $150,000. Financing will be arranged through Federal aid.

City Council, Robstown, Tex., plans new municipal electric power plant, with installation of three 575-hp. diesel engine-generator units and auxiliary equipment. Fund of $275,000 is being arranged for new station and electrical distributing system. Garrett Engineering Co., Houston, Tex., is consulting engineer.

MICHIGAN DISTRICT

Rotary Electric Steel Co., Eight-Mile and Mound Roads, Detroit, has let general contract to Fort Pitt Bridge Works, Oliver Building, Pittsburgh, for structural steel framing for one-story addition, 140 x 160 ft.; also award for foundations to Barton Malow Co., 1900 East Jefferson Street, Detroit. Cost over $125,000 with equipment. Shreve, Anderson & Walker, Marquette Building, are architects.

Chrysler Corp., 341 Massachusetts Avenue, Detroit, has taken option on tract of 65 acres of land near East town limits at Newark, Del., as site for new factory branch, storage and distributing plant, with parts division and facilities for certain finishing work. New unit will be one-story about 200 x 1000 ft. Cost close to $250,000 with equipment. Company also is considering a branch assembling plant on adjoining site at later date.

Kalamazoo Paper Co., Inc., Kalamazoo, Mich., manufacturer of writing, lithograph and kindred paper stocks, plans expansion and improvements in mill, including new addition for extensions in machine division, installation of new paper-making machine and auxiliary equipment. Cost about $400,000, of which close to $250,000 will be used for equipment.

Pfeiffer Brewing Co., 3700 Beaufait Avenue, Detroit, plans two-story addition to brewery on Bellevue Avenue, 90 x 153 ft., for storage and distribution. Cost over $75,000 with equipment. Harley & Ellington, Inc., Stroh Building, is architect and engineer.

MIDDLE WEST

M. B. Austin Co., 108 South Des Plaines Street, Chicago, manufacturer of electrical equipment, has let general contract to H. A. Peters Co., 19 South LaSalle Street, for one-story top addition, 100 x 118 ft. Cost over $60,000 with equipment. Morton L. Pereira & Associates, 100 West Monroe Street, are architects.

Crites Canning Co., Newman, Douglas County, Ill., canner and packer of food products, plans rebuilding of plant near Newman, recently destroyed by fire. Loss close to $100,000 with equipment.

Quartermaster Depot, 1819 West Pershing Road, Chicago, asks bids until Sept. 20 for 8000 trunk lockers (Circular 199-30).

Village Council, Fairfax, Minn., asks bids until Sept. 7 for new municipal electric power plant unit, including diesel engine-generator and accessories, switchboard and other equipment. G. M. Orr & Co., Minneapolis, Minn., are consulting engineers.

Board of Trustees, University of Colorado, Boulder, Colo., will take bids soon for one-story addition to engineering shops at institution. Cost about $45,000 exclusive of equipment. Appropriation has been arranged. Glenn H. Huntington, National State Bank Building, is architect.

Central Nebraska Power and Irrigation District, Third and St. Joseph Streets, Hastings, Neb., George E. Johnson, chief engineer and general manager, asks bids until Sept. 9 for Jeffrey Canyon power plant building for hydroelectric station, power substation and transmission lines (Group 22-D), 75,200 lbs. of radial gates and hoists, sluice gates, 367,900 lbs. of reinforcing steel, 43,300 lbs. miscellaneous iron construction, etc., for Parshall flume, Station 252, and Jeffrey regulation reservoir inlet structure and wasteway (Group 22-E), headgates, frames, motors, etc. (Group 22-F).

Modine Mfg. Co., Desmond Street, Racine, Wis., manufacturer of automobile radiators, air-conditioning equipment, etc., is concluding purchase of tract of 13 acres of land for expansion, and will use for several new one-story units for large increased capacity. Cost over $150,000 with equipment. Walter Winkle is president.

Quartermaster, Sparta, Wis., asks bids until Sept. 6 for quantity of copperclad steel core wire (Circular 7601-7).

PACIFIC COAST

Finkelstein Foundry Supply Co., 2323 East Twenty-seventh Street, Los Angeles, manufacturer of foundry equipment and supplies, plans one-story foundry at 9999 South Alameda Street, 30 x 240 ft. Cost over $50,000 with equipment.

Phoenix High School District, Phoenix, Ariz., plans one-story mechanical arts and vocational building at new high school group, for which bids will be asked soon on general contract. Fund of $800,000 is being arranged for project. Lescher & Mahoney, Title & Trust Building, Phoenix, are architects.

Bureau of Reclamation, Denver, Colo., asks bids until Sept. 9 for one clutch-operated, crawler-traction-mounted, full-revolving, diesel engine-powered, convertible-type dragline excavator for Yuma project, Ariz. (Specifications 1113-D).

City Council, Burbank, Cal., plans new municipal electric power plant for auxiliary service in connection with main power supply from Boulder Canyon hydroelectric power development of Federal Government. Cost about $900,000, of which $408,000 will be secured through Federal grant and remainder through bond issue of $350,000 and available fund of $150,000. Special election has been called Sept. 23 to vote bonds. J. H. McCambridge is superintendent of Public Service Department, in charge.